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Sib Corbett and Jayne Balmer



**Records of the
Queen Victoria Museum
Launceston**

**112
2003**



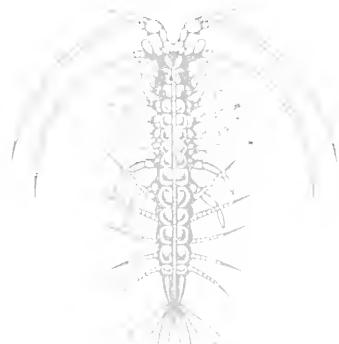
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Manuscript submitted for publication 25.8.2000
Published December 2003

Records of the Queen Victoria Museum
(a peer-reviewed journal) is published by the
Queen Victoria Museum and Art Gallery,
2 Wellington Street,
Launceston Tasmania 7250 Australia

Records Editor: Chris Tassell
Publications Coordinator: Kaye Dimmack
Design: Carolyn Coert
Printing: Bokprint Pty Ltd, 69 Boland Street,
Launceston Tasmania 7250
ISSN 0085-5278

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ABSTRACT

The vegetation of the Rocky Cape National Park are mapped and described. The most extensive plant communities within the Park are heaths, buttongrass moorlands, heathy *Banksia* and *Eucalyptus* woodlands and dense coastal shrubberies. On some damp south-facing fire protected slopes eucalypt forests have developed. As drainage and soil dryness increases, the forests grade from *Eucalyptus obliqua*/*E. nitida* wet forest with scrub understorey to dry *E. viminalis* forest and woodland with a heathy understorey. The coastal sand plains carry short *Melaleuca squamea* swamp vegetation, where the wettest areas are dominated by *Leptospermus tenax* and other graminoids. There are a few very small stands of *Melaleuca ericifolia* swamp forest, and tall tea tree scrub (*Leptospermum lanigerum* or *L. glaucescens*) forms the mid-storey in some woodlands.

The flora of the Park consists of more than 407 native vascular plant taxa (13 endemic in Tasmania) with an additional 48 introduced species. Twenty-seven of its species are listed as rare. Milligan collected the endangered species *Euphrasia scabra* there in 1842 but it appears to have become locally extinct. *Cyathea cunninghamii* was recorded in the first half of the nineteenth century but is now not known from the area. The vegetation of the Park has affinities with both eastern and western Tasmanian vegetation types and a number of taxa appear to be at the limit of their geographic range.

INTRODUCTION

A Parks and Wildlife Service expedition in 1996 surveyed and mapped the vegetation of the Rocky Cape National Park in order to improve and update the inventory of the natural resources for the area. This paper integrates the results of the 1996 survey and other data gathered from the literature, the DPIWE database 'GTSPOT', and the Tasmanian Herbarium database.

The area was declared a National Park in 1967 and although enlarged to include the Sisters Hills in 1975, it remains the smallest (3064 ha) of Tasmania's National Parks. Despite its size it has many significant conservation values. Archaeological evidence suggests that the area was continuously occupied by Aborigines for 8000 years until the 1830s when European invasion resulted in the removal of the remaining tribal native peoples from the area. As one of the few remaining substantial sections of uncleared coastal land on the north-west Tasmanian coast it is an extremely valuable reserve for the protection of a great diversity of plants and animal species. Emerged sea caves 21 m above the current sea level are of geo-heritage significance since they provide evidence of past sea level changes (Scanlon et al. 1990).

Firth was the first to undertake a vegetation survey of the Park in the 1960s, although botanical collectors such as Ronald Gunn and Joseph Milligan had made collections from the area as early as 1836 (Buchanan 1988). Firth described the flora of the Rocky Cape headland briefly and provided a comprehensive census of its flora (Firth 1969). Extensive taxonomic revisions since 1969 make it worth presenting Firth's census for the Rocky Cape

headland again here. An environmental impact assessment for a Telstra cable route has been prepared by the Tasmanian Herbarium (Buchanan 1996) which provides a description and census of species for a cable route over Sisters Hills to Sisters Beach. A brief description of the vegetation of the Rocky Cape National Park is also included within the Land Systems survey report for North-west Tasmania (Richley 1978).

Kirkpatrick et al. (1991) compiled a list of plants known from this reserve as part of their assessment of the reservation and conservation status of Tasmania's native vascular plant species. Their data has been collated on a Filemaker database, which was most recently updated in 1996. In all, 236 taxa were recorded from the Park as at 1996. This paper adds a further 145 plant taxa.

A more substantial list has been compiled by the Burnie Field Naturalist Club and includes some 364 plant species observed by members on trips to the area (Dick Burns, pers. comm.).

Data has also been collected from the Park as part of a number of systematic statewide surveys of particular vegetation types. These include the coastal heathland survey (Kirkpatrick 1977, Kirkpatrick & Harris 1999), the coastal survey (Kirkpatrick & Harris 1995), a buttongrass moorland survey (Jarman, Kantvilas & Brown 1988) and a wet forest survey (Kirkpatrick et al. 1988). Forestry Tasmania have included data from the Park within their 'Botanical Atlas', Resource Management and Conservation Division in the Department of Primary Industries, Water and Environment have included records from the Park within the 'TASFORHAB' database (Peters 1983). The orchids

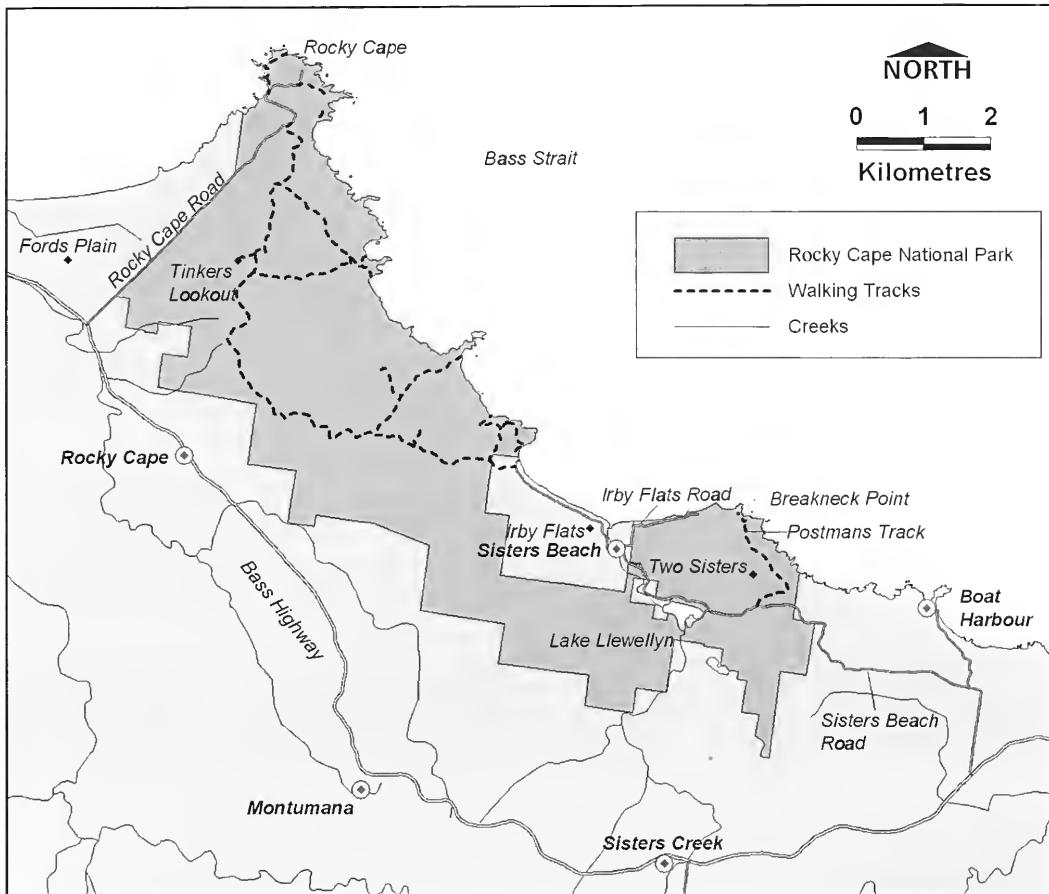


Figure 1: Location diagram showing the Rocky Cape National Park and features referred to in this paper.

of the Park have been surveyed and records included within the Orchid Atlas of Tasmania (Ziegeler 1996, Jones et al. 1999); the fern records for the Park have been compiled by Garrett (1997).

The principal management issues presently impacting on the long-term conservation of flora species and plant communities are fire frequency, plant disease, and weed invasion. A fire management plan has been prepared for the Park (*Fire Management Plan Rocky Cape National Park and adjoining Crown Land*, 1987).

SITE DESCRIPTION

LOCATION, TOPOGRAPHY AND ACCESS

Rocky Cape National Park lies along Tasmania's north coast, west of Wynyard and north of the Bass Highway (Figure 1). The 30 sq. km Park includes much of the coastline between Rocky Cape and Boat Harbour, and about 14 km of rocky shoreline and beaches. The southern Park boundary is generally three to four km from the nearest shoreline, but is highly irregular, being largely determined by the geological boundary between

quartzite and basalt and therefore by agricultural and residential property boundaries. Sisters Beach township, an area of about 2 1/2 square km, is enclosed within the south-eastern part of the Park.

Apart from a few sea cliffs the topography rises steadily from a predominantly rocky coast to an undulating plateau at about 200 m ASL, with hilltops above 250 m. Tinkers Lookout, at 291 m, is the highest point in the Park. Near the southern and western boundaries the land drops away sharply.

Paved access to the western end of the Park is provided by the Rocky Cape Road, which forms some of the western Park boundary, and in the east by Sisters Beach Road. Between Rocky Cape and Sisters Beach the high country is crossed by a walking track while a combination of tracks and beaches enables a full traverse closer to the coast. There is a network of fire trails south-west of Sisters Beach township. From Breakneck Point on Irby Flats Road, the Postman's Track leads over the eastern end of the ridge to Sisters Beach Road, east of Lake Llewellyn.

PALYNOLOGICAL DESCRIPTION OF PAST VEGETATION

Palynological investigations suggest that Rocky Cape was vegetated by open eucalypt forest at the onset of the last glacial (Colhoun 1977). At that time the families Poaceae and Asteraceae were very important. As Tasmania deglaciated the importance of *Allocasuarina* and *Monotoca* temporarily increased while the Asteraceae and Poaceae declined. In the last 10 000 years, with the occupation of the area by Aborigines, *Encalyptus* and Myrtaceae declined in importance and similarly *Allocasuarina*, *Monotoca*, Asteraceae and Poaceae have been only minor components in the vegetation. In contrast the Epaeridaceae (particularly *Leucopogon* and *Sprengelia*), Fabaceae and Restionaceae increased in importance as the open forests were replaced by heath and sedgeland, presumably as a result of increased burning. The abundance of Cyperaceae appears to have remained relatively constant with time.

HISTORIC ACCOUNTS OF VEGETATION AND LAND USE

Several early accounts of the area give an indication that the present landscape is little changed from that encountered by early 19th century European explorers and settlers. For example, in 1798 Flinders and Bass described the area between Table Cape and Rocky Cape with the words: 'there seems scarcely earth enough to support a starved scrubby brush, the bare rock showing itself in patches upon the summit of the hills.'

Charles Hardwicke had similar sentiments about the area east of Rocky Cape following his voyage around the north-west coast of Tasmania in 1823:

'From this River to Rocky Cape the Land is Mountainous, extremely barren and totally unfit for habitation. . . . In this extent of coast there is no appearance of its being frequented by Natives, and Kangaroos are very scarce.'²

However, Charles Hardwicke's observations and assessments are thought to be unreliable (Binks, 1980). George Augustus Robinson travelled on foot through the Rocky Cape area in 1830 providing much more detail³:

'25 July [1830] . . . Travelled on to Rocky Cape and crossed the neck to the east part. . . . The mountains of Rocky Cape are covered with heath and grass-trees. The heath had been recently burnt. Passing the point, ascended some steep rocky hills and anon descended into plains. Heavy travelling. At 5 pm came to the third river, called by the natives PAY.EN.WOOD.IC [Sisters Creek]. . . . The bush round this river is called by the natives MOON.ROUNE.ER.TOUR.ROUNE.ER. Observed the natives [his travelling companions] to eat the grass-trees: they took a stone and beat down the young grass-tree and stripped off the outer leaves. I ate some and

found it very nutritious, in taste like a roasted chestnut. It is called MAR by the Brune natives, YAM.MER.NER by the R.I. [Robbins Island] natives, and KER.LETH.ER.KER by the Oyster Bay. The Brune natives told me they eat the pad when young. . . .'

'26 July Pleasant weather. Natives hunting kangaroo [Robinson's travelling companions]. . . . At 10 am proceeded on our route over rocky hills for about ten miles. The country is very rugged, the mountains covered with scrub and terminating in steep rocky cliffs. Came to a point of rock called the Two sugarloaves, and the Cave Boat Harbour, so called by the boatmen from there being caves of the side of the rock. . . . in the course of this days travelling saw traces of the natives [the local Table Cape band], where they had had their fires and where they had been eating roots, fresh done. . . .'

The plain that was such 'heavy travelling' and probably therefore vegetated by *Melaleuca* scrubland has now been largely cleared for the pasture and shacks adjacent to Sisters Beach but little else has altered the Rocky Cape vegetation. In contrast the vegetation on the 'red loam soils' of the Table Cape area described by Robinson as 'forest to the waters edge' is now long replaced with pasture and fields.

FIRE HISTORY AND FIRE MANAGEMENT PLANNING

The palynological record and historic records both suggest that Rocky Cape has had a long history of frequent firing. Since 1972 there have been at least 17 separate wildfires within the Park including six major wild fires (each greater than 400 ha). Arsonists were responsible for at least four fires while accidental escapes from fuel reduction burning and land clearance burns were responsible for most of the others (*Fire Management Plan Rocky Cape National Park and adjoining Crown Land*, 1987, DPIWE files and Annual reports). The largest fire recorded for the Park burned 2046 ha in March 1998, burning all but the eastern end of the Park. The cause of the fire was an abandoned campfire. No assessment is made here of the impact of this fire or more recent fires. The vegetation is described as it was prior to the 1998 fire.

The most recent fire management plan was written in 1987. The policy of the Department as stated within the management plan is to actively suppress all wildfires within the Park and to restrict the use of fuel reduction burning to that required to protect shacks, Sisters Beach township and other built assets. This fire management policy is prescribed in an attempt to reduce the spread and impact of the plant disease *Phytophthora cinnamomi* (Anon. 1987). No habitat management burning has been undertaken within the Park and none is planned at present.

It is now a fire management practice within the Parks and Wildlife Service to try to plan for an irregular fire interval within specified interval ranges dependent on the vegetation type (see prescriptions in *St Helens Crown Reserves Fire Management Plan*, 1999, p. 7). This fire management planning policy is adopted from observations and findings reported within Ashton (1981), Noble and Slatyer (1981), Bradstock and Auld (1995), Bradstock et al. (1995) and Morrison et al. (1995).

METHODOLOGY

VEGETATION MAPPING METHOD (TOPOGRAPHIC BASES AND AIR PHOTOS)

Rocky Cape National Park covers parts of three Tasmap 1:25 000 topographic sheets—Mawbanna 3646 (ed. 1, 1985), Rocky Cape 3647 (ed. 1, 1984) and Wynyard 3846 (ed. 1, 1984). Stable transparencies of each of these sheets were used to plot vegetation polygon boundaries that were then digitized and tagged for entry onto a Geographic Information System.

The map is based on 1:42 000 black and white photography (Circular Head A039, 1994, Runs 4 and 5) and is as accurate as possible as of summer 1994. Effects of, for instance, the extensive 1998 fire west of Sisters Beach is not shown.

The vegetation map presents two levels of information. The first is a colour-coded map (see map legend) of generalized community types described in the text. The second more detailed layer of information is in the form of a string of symbols that represent each plant community within each vegetation unit or polygon. This mapping system (described in Kirkpatrick 1990) provides a method to describe complex vegetation assemblages, for example when a number of vegetation types are closely arranged within a mosaic or where a very small area of a vegetation type occurs within the polygon which is too small to map separately. The method also enables the various vertical layers in the vegetation to be mapped (i.e. the overstorey as well as the understorey). See Table 1 for an explanation of the mapping codes.

Table 1: Key to Synusia-based mapping codes on the vegetation map.

- / A/B A more abundant than B.
- A-B A taller than B
- ~ A~B A vegetation mosaic of A and B (A equal to or more common than B)

EUCALYPTS

- En *E. nitida* - appears on map as an overlay
- Eob *E. obliqua* - " " " "
- Eov *E. ovata* - " " " "
- Ev *E. viminalis* - " " " "

SMALL TREES/SCRUB

- Bs *Banksia serrata* appears on map as an overlay
- Lt Tall tea tree
- L *Leptospermum scoparium* scrub or tall heath
- Mt *Melaleuca* swamp forest
- Wf Wet scrub
- Hm *Monotoca* shrubbery (also Wm)

COASTAL SHRUBBERIES

- Acs Beach-back shrubbery
- LCS Coastal shrubbery

HEATH

- Hc Coastal heath
- Lg *Leptospermum glaucescens* heath
- Lo *Lomandra* heath
- Hx *Xanthorrhoea* heath
- H Heath

BUTTONGRASS MOORLAND

- Hwb Wet heath
- Ma *Melaleuca squarrosa* swamp/moorland
- Bl *Sporadanthus* wet moorland
- Lf *Lepidosperma filiforme* moorland
- B Buttongrass moorland
- S *Sphagnum* peatland

MISCELLANEOUS

- F Ferns dominant in the ground layer
- Ro Rocky or gravelly area
- Z Cleared area

VEGETATION SURVEY METHOD

A number of people participated in the collection of vegetation data for the Park in a one-week field trip held in December 1996. Data was collected from all observed vegetation types. All reasonably accessible parts of the Park were visited and varying types of data recorded. The major aim of the survey was to compile a complete plant census and gather distribution data for the Park. In some cases running species lists were recorded as the observer moved through an area. In other cases species presence was recorded for plots 10 x 10 metres square. Spot location records were also recorded for some plants. Data is now maintained within the GTSpot database managed by the GIS section of the Resource, Management and Conservation Division of the Department of Primary Industry Water and Environment.

INVENTORY COMPILATION METHOD

All vascular plant data for the Rocky Cape National Park area was exported from the GTSpot database. A list of the sources from which the Rocky Cape data was compiled is listed in Appendix 1.

Grid references were checked for accuracy to ensure all records were from within the Park boundary. Records that fell outside the boundary or had a large inaccuracy

(greater than 2 km) were excluded. The remaining records contributed to the vascular plant species census.

Data from the Tasmanian Herbarium's incomplete database were also extracted in 1997. The data search covered two rectangular areas, the first defined by 371000 E to 377000 E and 5469000 N to 5477000 N and the second defined by 375000 E to 382000 E and 5467000 N to 5470000 N. Consequently, records from outside the Park were included in the data set. Where the Herbarium database provided evidence of a plant otherwise not known from the Park, the grid reference of the record was checked to ensure that it was a plant recorded from within the Park boundary.

The plant census for Rocky Cape National Park also incorporates data from: Firth (1969), Buchanan (1988), Jones (1998), Buchanan (1996), Garrett (1996), Kirkpatrick et al. (1991) and the Burnie Field Naturalists Club (unpublished). Appendix 2 provides the resulting inventory of plants for the Park. Not all records have vouchers or accurate grid localities but where only a single record for a species exists, the source is referenced. Taxonomic nomenclature follows Buchanan (1999).

PLANT COMMUNITY ANALYSIS

Those records extracted from the GTSpot database that consisted of plot data were subjectively selected for analysis. There were a total of 118 plots. Infrequently occurring species were grouped with related species e.g. *Dianella tasmanica* was grouped with *Dianella revoluta*. Plants that could not be grouped and were recorded for only a single plot, geophytes and introduced species were excluded from the data. A total of 250 taxa remained to investigate the plant associations of the Park.

The data set was analyzed within the computer package PATN (Belbin 1995) using the programs TWINSPAN (Hill 1979) to classify the vegetation plots. The TWINSPAN classification is not presented here but was used to assist in understanding the vegetation associations. Field observations, the vegetation map and classification units and other community classifications of vegetation from within the Park were also used to interpret the communities present within the Park.

THE FLORA

FLORA OF CONSERVATION SIGNIFICANCE

Only the vascular flora is described here. There are 407 native vascular plant taxa that have been recorded within the Park at some time in the past, only 13 of which are endemic to Tasmania. Eight plants on the census have not been recorded in the last 40 years. Included within the flora are 27 plant taxa considered rare or threatened (Flora Advisory Committee 1994) of which 19 are protected by the *Threatened Species Protection Act*

(1995). Appendix 2 provides details of the conservation significance of each species within the reserve.

Eight plant species are known to be reserved in Tasmania only within the Rocky Cape National Park. These are the orchids *Diuris palustris*, *Genoplesium braehystachyum*, *Mierotis orbicularis* and *Thelymitra azurea*, the herb *Goodenia geniculata*, the shrubs *Boronia pilosa* var. *laricifolia* and *Tetratheca ciliata* and the grass *Agrostis billardierei* var. *billardierei* (Kirkpatrick et al. 1991).

Perhaps the best known of Rocky Cape's rare species is *Banksia serrata*. In Tasmania this species is confined to the eastern half of Rocky Cape National Park, parts of the Dip Range Unallocated Crown Land and the Shakespeare Hills State Forest. It also has a small population within the Wingarook Nature Reserve and so is known from two reserves in Tasmania. Seventy percent of its population is reserved but its rarity as a woodland community (occupying only about 1600 ha) makes it a target as a RFA priority for reservation. In the Rocky Cape and Dip Range, it is generally restricted to north and north-west facing slopes, plus the flat sand plains around Sisters Beach. Many of the trees within the Sisters Beach township appear to have been planted or have been derived from garden stock.

The plants listed as endangered (Tasmanian *Threatened Species Protection Act 1995*) that occur within the Park are the orchid species *Diuris palustris*, *Genoplesium braehystachyum* and *Thelymitra azurea*. *Enphrasia scabra* a plant also listed as endangered has not been recorded from Rocky Cape since Milligan collected it in 1837. This species was once more widespread in Tasmania and has become very rare and restricted due to land clearance, weed invasion and changes to burning frequency (Department of Conservation and Environment, n.d.).

Early herbarium records of *Cyathea cunninghamii* from Rocky Cape and other areas of the North-west suggest that this species had a more extensive and populous distribution in the past (Garrett 1996). *Cyathea cunninghamii* no longer occurs within the Rocky Cape National Park.

Rocky Cape is a type locality for a number of species including the orchids *Genoplesium brachystachyum* (collected in 1837 by Milligan), *Burnettia emeata* (collected by Gunn) *Calochilus herbaceus* and *Prasophyllum brevilabre* (Whelan & Cavé 1996 and Jones et al. 1999).

DISEASE-SUSCEPTIBLE PLANTS

The plant pathogen *Phytophthora cinnamomi*, a water mould, has a patchy distribution throughout the heaths and sedgelands of the Park. Frank Podger observed symptoms of its presence within the Rocky Cape area in the 1970s. The pathogen is particularly evident, but not

restricted to, areas with shallow soils adjacent to fire trails, tracks, roads, quarries and the Telstra cable route over the Sisters Hills. Evidence of the spread of the pathogen is easily discernible by the patches of dead and dying grass trees (*Xanthorrhoea australis*), which are extremely sensitive to *Phytophthora cinnamomi*. While the vegetation map shows that *Xanthorrhoea* is still quite widespread through the Park it is likely that its populations have been considerably reduced. Many other species are sensitive to the pathogen and are noticeably absent or reduced in infected areas. Therefore densities of susceptible species within the Park are being modified by the spread of *Phytophthora cinnamomi*.

Plants growing on the deep sands east of Sisters Beach are afforded a degree of protection against the pathogen due to its reduced ability to spread in the free-draining soils. However the general absence of both *Xanthorrhoea* and *Blandfordia* (another species sensitive to the pathogen and conducive to its spread) from the lower slopes suggests that communities are being significantly modified in this area due to the presence of *Phytophthora*. In contrast to the situation at Rocky Cape National Park, heathlands carrying *Banksia serrata* in the Dip Range have only small populations of *Xanthorrhoea*, but are well endowed with other susceptible species. Perhaps the range is naturally depauperate in *Xanthorrhoea* and the area has not been infected. However it may also indicate past infection by *Phytophthora*, which has now reduced in virulence and abundance enabling some recovery of some species from the disease, but no tests have been undertaken to confirm this hypothesis (Dr Michael Brown, pers. comm.).

Field observations suggests that *Banksia serrata* is just slightly susceptible to *Phytophthora cinnamomi* particularly in Victoria. Juveniles at Rocky Cape are known to be killed by the pathogen but the adult population seems more resistant here. No testing on this species has been conducted. Particularly susceptible families include Fabaceae, Proteaceae, Epaeridaceae, and Dilleniaceae, but not all genera or species are affected even within these families (*Phytophthora cinnamomi hygiene manual*, 1993).

INTRODUCED PLANTS

At least 48 introduced plant species have been recorded within the Park with others known from adjacent areas. These species are noted in Appendix 2. One of these species is Oyster Bay Pine (*Callitris rhomboidea*) native to Tasmania but not likely to naturally have occurred within the Park. It is now growing within the Park and is well established on waste ground within the township where it is presumed to have escaped from Sisters Beach gardens. A few other exotic species of *Banksia* and *Acacia* have been planted along Sisters Beach Road and are spreading to a limited extent.

The most serious weed issues in the Park occur within the coastal zone. Here marram grass (*Ammophila arenaria*)

threatens dune vegetation and a number of introduced grasses and herbs are common and displacing native species. This zone is at risk of invasion from other weed species around the Tasmanian coastline including coastal sea spurge (*Euphorbia paralias*). The New Zealand flax (*Phormium tenax*) has begun to colonize the estuary of a small creek on the mid section of the coastal area. Enclaves of settlement at Lake Llewellyn, Sisters Creek and at Irbys Creek will be reservoirs of exotic garden plants, some of which may pose a threat to surrounding native vegetation. Species in this category include *Erica lusitanica*, *Genista monspessulana* and *Psoralea pinnata*.

VEGETATION DESCRIPTION

GENERAL INTRODUCTION

The vegetation of the Rocky Cape National Park includes coastal vegetation, heathland, heathy woodland, dry forest, buttongrass moorland, wet scrub and wet forest vegetation. The coastal communities have a distinctive suite of species with relatively few held in common with the other vegetation types. The woodlands, heathlands and moorlands form a continuous floristic gradient, sharing many species in common and dominating the greatest area of the Park. The change from one community to another is often gradual, reflecting the lack of abrupt discontinuities within the edaphic gradients that control the distribution of each species. Sharp vegetation boundaries are therefore the exception for this area rather than the norm. Fire boundaries can be seen within the vegetation though the differences within the floristic communities on either side of the boundary can be either marked or subtle. Fire protected sites support a forest vegetation which is floristically distinct from the woodlands, heaths and moorlands found elsewhere within the Park and which has a more distinctive boundary than most of the other vegetation types. Tall scrub communities form a floristic transition between the heaths and forests.

In the following descriptions, the vegetation of Rocky Cape National Park is divided into structural types e.g. forests and woodlands, scrub etc. For each of these structural types the mapping units (see Table 1) and their associated plant communities are then described in terms of their typical floristic and environmental associations.

EUCALYPT WOODLANDS AND FORESTS

SMITHTON PEPPERMINT COMMUNITIES

The Smithton peppermint (*Eucalyptus nitida*) (En) form sparse woodlands over many of the heaths and moorlands throughout the Park. Heathy *E. nitida* woodland is widespread in the Park and is a well reserved community type (Duncan & Brown 1985, Kirkpatrick et al. 1995 and Kirkpatrick & Harris 1999). West of Sisters Beach *E.*

nitida trees are often stunted and multi-trunked, partly as a result of low-nutrient situations, but also due to frequent firing. In the hills near Rocky Cape, coppices of stunted *E. nitida* sprout from the charred stumps of much larger trees than those seen now, suggesting that intervals between fires may have been longer in the past.

E. nitida may also share the canopy or slightly overtop *Banksia serrata* in open woodland/moorland/heathland mosaics, and occurs with *Banksia serrata* and some *Eucalyptus ovata* (Eov) on the edges of sand plains such as Fords Plain and Irbys Flats, where fertility appears to be higher and trees exceed 10 m in height. This community is classified as *Banksia serrata* open forest (Kirkpatrick et al. 1991). Only a small portion of this community remains unreserved but it is a very rare vegetation type in Tasmania and management within the Park for its long-term protection is a high priority.

At the ends of Two Sisters ridge *E. nitida* is joined by *E. viminalis* in an open forest with an understorey of tall heath/scrub dominated by *Monotoca glauca*. Near Lake Llewellyn *E. nitida* forms an open canopy over wet scrub dominated by *Leptospermum lanigerum* (Lt and L).

MESSMATE STRINGY BARK COMMUNITIES

Relatively fire-protected damp and shaded areas, close to the southern edges of the Park, support wet forests of the messmate stringy bark (*Eucalyptus obliqua*) (Eob). This forest has an understorey dominated by trees such as *Monotoca glauca*, *Acacia mucronata*, *Acacia verticillata*, *Acacia melanoxylon*, *Leptospermum scoparium*, *Melaleuca squarrosa*, *Pomaderris apetala* and *Zieria arborescens*. The middle layer is generally sparse with species such as *Coprosma quadrifida*, *Lepidosperma* sp., *Gahnia grandis*, *Pteridium esculentum* and in a few areas the tree fern (*Dicksonia antarctica*). The ground layer is generally dominated by the ferns *Blechnum nudum* and *Blechnum wattsii* or by a deep layer of leaf litter. Other species in the ground layer of the community include *Todea barbara*, *Hydrocotyle hirta*, *Dianella revoluta* and *Gleichenia microphylla*. This vegetation fits within the described community type *Eucalyptus obliqua*-*Melaleuca squarrosa*-*Monotoca glauca* wet sclerophyll forest (Kirkpatrick et al. 1988).

In more infertile, exposed situations the understorey of *E. obliqua* forest may be a tall heath of *Monotoca*, *Acacia terminalis* and bracken (*Pteridium esculentum*). In the latter situations *E. obliqua* is joined by *E. nitida* and/or *E. viminalis*.

MANNA GUM COMMUNITY

Pure stands of manna gum (*Eucalyptus viminalis*) (Ev) occur in only one area, at the eastern end of the 'Two Sisters' ridge, facing the sea on a spine of rock which supports a dry open shrubland of *Bursaria spinosa*, *Leucopogon ericoides*, *Leptospermum scoparium* and

Leptomeria drupacea. This vegetation does not fit easily into a dry sclerophyll community of Duncan and Brown (1985) but the description for the community coastal shrubby *E. viminalis* provides the closest match.

OTHER TREE-DOMINATED ASSOCIATIONS

SAW BANKSIA

The saw banksia (*Banksia serrata*) (Bs) occurs either as the sole canopy dominant or with or below *Eucalyptus nitida* in woodland or open forest vegetation with a heathy understorey. This *Banksia serrata* open forest (Kirkpatrick et al. 1991) occupies north or north-west-facing slopes on Two Sisters ridge and in the Dip Range, but is best developed (and the trees are biggest) on level ground around Irbys Flat and in Banksia Grove above Razor Beach. This last woodland appears to have been severely damaged by recent fires but the evidence from other parts of the Park and the Dip Range suggests recovery will be complete.

Banksia serrata woodlands are uncommon within the Park, and most *Banksia serrata* occur as isolated trees on well-drained fairly steep slopes within *Xanthorrhoea* and *Leptospermum glaucescens* heaths. *Banksia serrata* does not usually occur in the *Melaleuca* moorland or wet heath, and it does not persist onto the moorland plateau of the high country (not even within the dry heath elements of this vegetation), nor does it occur on the wet south-facing slopes of Two Sisters.

MELALEUCA ERICIFOLIA SWAMP FOREST

Typical *Melaleuca* swamp forest (Mt), with melaleucas 4–5 m tall growing in water or with a very meagre understorey, are very poorly developed within the Rocky Cape National Park. Small stands on the coastal plains near Rocky Cape may have a core of pure *Melaleuca ericifolia* but the margins are rich in tall *Leptospermum scoparium* and merge into diverse coastal heath. *M. ericifolia* is also an important component of the dense coastal shrubberies which extend a few metres back from most shorelines. In coastal situations this mapping type matches descriptions of the coastal community *Melaleuca ericifolia* heath/scrub (Kirkpatrick & Harris 1995) and where it develops into a taller, denser vegetation on inland swamps it matches the depauperate coastal paperbark swamp forest of Pannell (1992).

TALL TEA TREE

Tall tea tree (Lt) is dominated by *Leptospermum* species and may occur as a canopy over heath or as mid or understorey to eucalypts. At Rocky Cape tall *Leptospermum glaucescens* forms isolated thickets with *Eucalyptus nitida*, and also occur as a canopy dominant in a fairly continuous belt along the steep banks of the creek system containing Doone Falls. *L. glaucescens*

commonly occurs as a sparse emergent over a heath of *L. scoparium*, *L. laevigatum*, *Philotricha virgata*, *Calytrix tetragona* and *Bossiaea cinerea*.

Small pockets of *L. lanigerum* occur as the dominant component of tall scrub with or without an emergent canopy of *Eucalyptus obliqua* and/or *E. nitida* (for example near Lake Llewellyn). No statewide classification of scrub communities has yet been undertaken and their conservation status is therefore poorly understood. However the communities represented within the Park are relatively widely dispersed community types.

MONOTOMA SHRUBBERY

Three- to four-metre shrubberies (Hm or Wm) showing low species diversity are found in dry but shaded areas beneath forests dominated by *Eucalyptus obliqua*. With increasing exposure this grades into dry heath, while with the addition of broad-leaf species there is a transition into wet scrub.

The shrubbery is dominated by *Monotoma glauca* as small trees, accompanied by *Acacia mucronata* and/or *A. terminalis*. *Pteridium esculentum* and *Lomandra longifolia* are constant, and there may also be *Leptospermum scoparium*, *Bursaria spinosa*, *Bossiaea cinerea*, *Olearia lirata* and *Leucopogon parviflorus*. Damp and sheltered areas may also have *Zieria arborescens* and *Acacia verticillata* over *Ozothamnus ferrugineus*, *Amperea xiphoclada*, *Dianella tasmanica*, *Xanthosia pusilla*, *Gleichenia dicarpa*, *Lindsaea linearis* and *Schizaea* sp.

WET SCRUB

Wet scrub (Wf) is poorly developed in the Rocky Cape National Park, being largely restricted to the creeks and sheltered slopes around Lake Llewellyn, and the edge of the Park on its south-western boundary. It occurs as an understorey in *Eucalyptus obliqua* forest (see the description for these communities above). An unusual form is confined to the sharp valley surrounding Doone Falls.

Wet scrub is characterised at Rocky Cape by the presence of *Acacia melanoxylon* and *Leptospermum lanigerum* over-topping *Acacia mucronata*, *A. verticillata*, *Monotoma glauca*, *Pomaderris apetala* and *Zieria arborescens*. Below these may be *Leptospermum scoparium*, *Melaleuca squarrosa*, *Olearia lirata*, *Gahnia grandis* and *Bauera rubioides* with *Blechnum wattsii* and *Amperea xiphoclada* on the ground and *Clematis aristata* scrambling through. Near Doone Falls wet scrub occurs under *Eucalyptus nitida* and includes *Philotricha virgata*, *Melaleuca squarrosa*, *Leptospermum glancesceus* and *L. laevigatum*, with a few *Todea barbara* and several small trees of *Atherosperma moschatum*.

COASTAL VEGETATION

An intricate mosaic of scrub, heath, shrubland, grasslands and herbfields occupies the coastal zone of the Park. Kirkpatrick and Harris (1995) have described the communities and associations formed within the coastal zone. Most of these communities are too small in extent to map. Therefore much of the zone is mapped as one of two coastal heathlands, coastal heaths (Hc) or *Lomandra* heathy-sedgeland (Lo). These heathlands are described within the heath and moorland section below. The two coastal shrubberies—‘beach back’ (Aes) and ‘coastal’ (ACS)—are only mapped where they occur in large enough areas.

There are a number of herblands and grasslands communities described by Kirkpatrick and Harris (1995) that occur within the coastal zone. On wet peaty soils within the salt spray zone species such as *Juncus kraussii*, *Sarcocornia quinqueflora*, *Samolus repens* and *Schoenus nitens* are important components of the community—*Juncus kraussii* rushland. This community also contains *Apium prostratum*, *Austrostipa stipoides*, and *Isolepis nodosa*. In the sandy foredunes along the coast the common sand binding grass community is *Austrostipa littoralis* grassland. Species associated within this community include *Actites megalocarpa*, *Amnophila arenaria*, *Cakile edentula*, *Carpobrotus rossii*, *Dichondra repens*, *Isolepis nodosa*, *Sonchus oleraceus* and *Spinifex sericeus*. On the coastal rocky outcrops in the salt spray zone *Austrostipa stipoides* tussock grassland is typical. Other grasses such as *Poa poiformis* and *Isolepis nodosa* may also co-occur.

BEACH-BACK SHRUBBERY (Aes)

A very dense shrubbery of wind-pruned heath or scrub (2–4 m tall), often colonising sand dunes, is usually confined to narrow coastal strips at Rocky Cape. It is dominated here by *Acacia sophorae* and in some areas is dominated by *Tetragonia implexicoma*. *Leucopogon parviflorus*, *Correa backhouseana* and *Leptospermum scoparium* are also typical and common shrub components of the community. Sandy shoreline fringes often have *Carpobrotus rossii* and clumps of *Austrostipa stipoides*, while *Lomandra* and *Poa poiformis* may be important on the inland side. Other species often present, although sparsely distributed, include *Isolepis nodosa*, *Acaena novae-zelandiae*, *Dichondra repens*, *Geranium potentilloides* and *Pteridium esculentum*.

This mapping unit corresponds closely to the community *Acacia sophorae* heath/scrub described by Kirkpatrick and Harris (1995). However, it is likely to include other communities such as their *Correa backhouseana* heath in which *Acacia sophorae* is replaced in importance by *Correa backhouseana* and the community *Acacia sophorae*—*Ozothamnus turbinatus* shrubland, although at Rocky Cape this community lacks *Ozothamnus turbinatus*.

There is sometimes a gradual transition from this vegetation into vegetation mapped as coastal shrubbery, making the mapped boundary somewhat arbitrary. The absence of *Melaleuca ericifolia* and a low diversity of species characterise the beach-back shrubbery.

COASTAL SHRUBBERY (LCS)

Dense to open shrubberies of 2–4 m tall scrub extends a few metres inland from rocky shorelines and is mapped as coastal shrubbery. They often include the species from the beach-back shrubbery (see above description) but they are more diverse and often include *Melaleuca ericifolia*. They may also include small trees such as *Acacia melanoxylon*, *Alyxia buxifolia*, *Banksia marginata*, *Leptospermum glaucescens*, *Leptospermum scoparium*, *Monotoca glauca* and *Pomaderris apetala*. Other commonly occurring heath species include *Aotus ericoides*, *Calytrix tetragona*, *Cyathodes juniperina*, *Dillwynia* species, *Philotheeca virgata*, *Leucopogon ericoides*, *Pultenaea juniperina* and in localised areas such as the eastern end of Sisters Beach, *Kunzea ambigua*, *Goodenia ovata* and *Lasiopteratum macrophyllum* also occur. Beneath the taller shrubs are the bracken fern *Pteridium esculentum*, the graminoids such as *Dianella tasmanica*, *Lomandra longifolia*, *Lepidosperma concavum* and *Lepidosperma gladiatum*, along with small heaths such as *Epacris impressa*, *Hibbertia sericea* and occasionally *Boronia anemonifolia*. Herbs such as *Dichondra repens*, *Oxalis perennans*, *Acaena ovina*, *Geranium potentilloides*, and the weed *Leontodon taraxacoides* provide sparse ground cover.

This mapping unit is a general category that includes a number of the coastal plant communities recognised by Kirkpatrick and Harris that occur behind the rocky shorelines, cliff-tops and in some situations on the sandy dunes within the Park. Included are *Alyxia buxifolia* heath, *Banksia marginata* heath/scrub, *Correa backhouseana* heath, *Leptospermum scoparium* heath/scrub, *Melaleuca ericifolia* heath/scrub, *Myoporum insulare* shrubland and *Leucopogon parviflorus*—*Lobelia alata*—*Isolepis nodosa* shrubland.

HEATHS AND MOORLANDS

The Rocky Cape National Park is underlain by quartzites which have produced acidic siliceous soils that support a rich array of heaths and moorlands. Moorlands at Rocky Cape occur on the poorly drained acid peatlands. They are typical of the frequently burnt parts of the Park on the southern slopes and in the gullies and flats associated with the hills and plateau. They occur also on the coastal plains where water tables are perched or soils permanently saturated so that peat soils have developed. The Rocky Cape moorlands have their closest affinities with Eastern Buttongrass moorland vegetation (*sensu* Jarman et al. 1988), although the frequent presence of *Leptospermum nitida* and the existence of the

Sporadanthus associations provide floristic links with the Blanket moorlands of South-west Tasmania. The term swamp is used in this report to indicate areas of semi-permanent soil saturation. The swamp vegetation has strong structural and floristic links with moorland and is incorporated by Jarman et al. (1988) within their moorland classification. The moorlands of the Park are more species-poor than the heaths and are distinguished by the presence of *Empodium minus*, *Epacris lanuginosa*, *Epacris obtusifolia*, *Gleichenia dicarpa*, *Gymnoschoenus sphaerocephalus*, *Lepidosperma filiforme*, *Leptocarpus tenax*, *Leptospermum nitidum*, *Sporadanthus tasmanicus*, *Melaleuca squamea*, *Melaleuca squarrosa*, *Eurychorda complanata*, *Selaginella uliginosa*, *Sprengelia incarnata* and *Xyris* spp.

Species common to both the Rocky Cape moorland and heath formations include: *Boronia pilosa*, *Philotheeca virgata*, *Eucalyptus nitida*, *Gonocarpus tetragynus*, *Hibbertia procumbens*, *Leptospermum scoparium*, *Leucopogon australis*, *Patersonia fragilis*, *Acion hookeri*, *Schoenus lepidosperma* subsp. *lepidosperma*, *Stylium graminifolium* and *Xanthorrhoea australis*.

The heaths may be essentially treeless on exposed slopes close to the coast. They may also contain a few thickets of stunted *Eucalyptus nitida* or form the understorey of woodland in which the canopy is *E. nitida*, sometimes with an uneven mid-storey that may include *Banksia serrata*, *B. marginata*, *Monotoca glauca* or *Acacia melanoxylon*. Coastal heath can vary in height from less than 0.5 m to more than 2 m where there is a *Leptospermum* overstorey. The heaths in the Rocky Cape National Park are characterised by the presence of shrub species such as *Banksia marginata*, *Allocasuarina monilifera*, *Acacia suaveolens*, *A. terminalis*, *Aotus ericoides*, *Epacris impressa*, *Leucopogon collinus* and the graminoids *Lepidosperma concavum* and *Hypolaena fastigiata*. Other species more common in the Rocky Cape heath than moorlands include *Acacia myrtifolia*, *Amperea xiphoclada*, *Baeckea ramosissima*, *Banksia serrata*, *Calytrix tetragona*, *Cassytha* spp., *Dillwynia glaberrima*, *Gompholobium huegelii*, *Hibbertia* spp., *Hypolaena fastigiata*, *Lepidosperma concavum*, *Leptospermum glaucescens*, *Leucopogon collinus*, *Lomandra longifolia*, *Persoonia juniperina*, *Pimelea* spp., *Pteridium esculentum* and *Xanthosia* spp.

The heathlands dominate a range of situations in the Park including the deep acid-leached sands of the coastal plains, the skeletal and sandy soils of the rocky headlands and seaward-facing slopes and well drained situations on the hilltops and plateau. Areas exposed to salt-laden winds or in situations of extreme nutrient poverty and water-logging may support heath even with a prolonged absence of fire. However in most other areas fire is required to prevent the succession of the vegetation to scrub and tree-dominated vegetation.

A range of factors perceptibly influences the floristics and structure of the moorland and heath communities. Of great importance is soil drainage, which is associated with slope, soil depth, organic content and the depth of the water table. With obvious reductions in soil drainage there is an increase in dominance by sedges and rushes and other plants tolerant of regular waterlogging, such as *Sprengelia incarnata*, *Epacris lanuginosa* and *Melaleuca* species. Factors such as exposure to salt spray or salt-laden winds, time since last fire, fire frequency and nutrient availability also effect the nature of the vegetation. The vegetation is generally stunted and trees may be excluded by lack of nutrients, exposure to salts, or by frequent firing. Long fire-free intervals favour the persistence of trees of *Eucalyptus nitida* and *Banksia marginata*, which are otherwise reduced to short, stunted coppice and small shrubs. The shrubs within heath can form dense tall scrub vegetation when fire is excluded from the vegetation for more than 20 years as evidenced by a number of abrupt boundaries between tall scrub and short heath which are clearly correlated to fire boundaries.

The coastal heath are distinguished from others in the mapping and occur both on level sand plains and the slopes of seaward-facing hills within about 3 km of the coast. In most areas the coastal heath shows very high species diversity, reaching a maximum on the well drained sand plains. Three forms of coastal heath were recognised during mapping and have been amalgamated on the simplified map. Coastal heath (Hc) and *Leptospermum glaucescens* heath (Hg) have many species in common and grade into one another while *Lomandra* heathy sedgeland (Lo) is restricted to a few rocky sites where soil fertility is greater.

COASTAL HEATH (Hc)

At Rocky Cape coastal heath is generally 1 m tall or less and is characterised by two or three *Dillwynia* species (*D. cinerascens*, *D. glaberrima*, *D. sericea*), *Philoteca virgata* and *Epacris impressa*. *Banksia marginata* and the upright *Hibbertia* species are uncommon. *H. procumbens* is sparsely present under some of the taller heaths. *Leptospermum scoparium*, if present, occurs as straggling emergents up to 2 m tall. Graminoids may make up to about 30% of the heath, chiefly *Lepidosperma concavum*, *Patersonia* sp., *Schoenus lepidosperma* subsp. *lepidosperma* and sometimes *Lomandra longifolia*. Herbs include *Stylium granulifolium*. Other characteristic species include *Allocasuarina monilifera*, *Calytrix tetragona*, *Leucopogon parviflorus*, a small-flowered form of *Baeckea ramosissima*, *Tetratheca pilosa* and sometimes *Leptospermum glaucescens*, *Gnaphalium* sp., *Boronia citriodora*, *Pimelea linifolia*, *Platylobium triangulare*, *Leucopogon australis*, *L. virgatus* and/or *L. ericoides*.

Hibbertia acicularis, *Lissanthe strigosa* and *Xanthosia pilosa* are typically found on the sand plains where a

number of orchid genera also occur. One of the communities represented on the plains and mapped as coastal heath is *Austrodantonia*—*Xanthosia pusilla*—*Helichrysum scorpioides* heath which has a high species diversity and commonly includes *Banksia marginata*, *Leptospermum scoparium*, *Epacris impressa*, *Patersonia fragilis*, *Hypolaena fastigiatum* and *Lepidosperma concavum* (Kirkpatrick 1977).

Pultenaea juniperina, *P. daphnoides*, *Aotus ericoides*, *Pteridium esculentum*, *Cassytha glabella* and *Bossiaea cinerea* occur in coastal heath but are more typical of dry inland heath under *Eucalyptus nitida* (described above). *Amperea xiphoclada*, *Melaleuca squarrosa* and *Cassytha glabella* may occur on the wetter fringes but are more abundant in vegetation mapped as wet heath (see below). The three *Acacia* species *A. suaveolens*, *A. terminalis* and *A. myrtifolia* are generally confined to sheltered heathy woodlands described above.

At the eastern end of Irbys Flat a community with floristics similar to the coastal heaths on siliceous sands in the north-east and Furneaux Islands, covers about one hectare of sand flats between the dunes and the foothills. This dense heath is 1–2 m tall and dominated by *Kunzea ambigua* densely inter-grown with *Allocasuarina monilifera*, *Leptospermum scoparium*, *Philoteca virgata*, *Aotus ericoides*, *Leucopogon ericoides*, *Epacris lanuginosa*, *Dillwynia glaberrima*, *Persoonia juniperina*, *Pimelea linifolia* and *Lasiopetalum macrophyllum*. Shorter species include *Epacris impressa*, *Leucopogon collinus*, *Boronia citriodora*, *Xanthosia pilosa*, *Gonocarpus* sp., *Gnaphalium* sp., *Lomandra longifolia* and *Lepidosperma concavum*, laced through with *Cassytha glabella*. Small copses of stunted *Eucalyptus nitida*, *Banksia marginata* and *Acacia sophorae* grow to 3 m high and are mapped as coastal shrubbery because it was not extensive enough to warrant a class of its own. It is probably one of the variants of the community *Lepidosperma concavum*—*Cassytha glabella*—*Gonocarpus tetragynus* heath.

LOMANDRA HEATHY-SEDGELAND (Lo)

Lomandra heathy sedgeland is a mapping unit used to describe heathy sedgeland with *Lomandra longifolia*, sometimes *Dianella tasmanica*, grasses (including *Austrostipa stipoides* and *Poa poiformis*) and sparse woody shrubs confined largely to storm beaches. On scree slopes just inland from the coast (e.g. Castle Rock) *Lomandra* occurs in a sparse woody heath with *Cyathodes juniperina*, *Leptomeria drupacea*, *Calytrix tetragona*, *Pultenaea daphnoides*, *Dillwynia glaberrima*, *Veronica derwentiana*, *Leucopogon ericoides*, *Leptospermum glaucescens* and *Correa alba*. The community *Lomandra longifolia*—*Astroloma humifusum* herbland (Kirkpatrick & Harris 1995) best describes the mapping unit.

LEPTOSPERMUM GLAUCESCENS HEATH (Hg)

Many heaths within one kilometre of the shoreline have an over-storey (to 2 m) of sparse to dense *Leptospermum glaucescens*. They include both tall treeless coastal heath in the north-western part of the Park and the shrubbery seen along Postmans Track east of Sisters Beach in which *L. glaucescens* dominates beneath *Banksia serrata* and stunted *Eucalyptus nitida*. The north-western *Leptospermum glaucescens* heath may include many coastal heath species while the Two Sisters heath shows relatively low species diversity. *L. glaucescens* may occur almost alone or with straggling *Dillwynia glaberrima*, *Allocasuarina monilifera*, *Leptospermum scoparium*, *Aotus ericoides*, *Leucopogon collinus* and *Banksia marginata* with *Xanthorrhoea australis* *Epacris impressa*, *Lepidosperma concavum*, *Gnaphalium* sp. and *Hibbertia procumbens* underneath. The mapping unit corresponds to two heath communities—*Leptospermum glaucescens*—*Hibbertia procumbens* heath, which occurs on wet acid sandy soils, and *Leptospermum glaucescens*—*Lepidosperma concavum* heath, which occurs on deep, well drained sandy soils. These two communities are floristically very similar, being distinguished mainly by the species *Hibbertia procumbens* and *Lepidosperma concavum* though there are also fewer small herbs and shrubs within the latter community (Kirkpatrick & Harris 1999).

Leptospermum glaucescens is not restricted to the mapping unit *Leptospermum glaucescens* heath, and may be an important species in wet heath, as well as dominating tall tea tree patches on the coast. However, *Leptospermum glaucescens* is absent from the *Banksia serrata* woodland at Banksia Grove and is only a minor component in the woodlands near Sisters Beach township and those on the Dip Range.

XANTHORRHOEA HEATH (Hx)

The mapping unit *Xanthorrhoea* heath is a short heath rich in graminoids, particularly *Lepidosperma concavum* and *Lomandra longifolia* which typically, but not always, contains *Xanthorrhoea australis*. It often contains the same species as the adjacent coastal heath with the addition of up to 25% cover of *X. australis*. It is most common on well drained north-facing slopes along the upper half of Sisters Hills, generally above the level where *Leptospermum glaucescens* is prominent. In many places in the eastern half of the Park *Xanthorrhoea* heath has scattered individuals of *Banksia serrata*, both species being favoured by north to north-westerly aspects and good drainage.

Xanthorrhoea heath has many species in common with coastal heath, but is distinguished by the greater abundance of graminoids and *Allocasuarina monilifera*. *Philotricha virgata*, *Dillwynia glaberrima* and *Leptospermum scoparium* are also constant species in this vegetation. The graminoids may include *Patersonia*

fragilis, *Lepidosperma concavum*, *Lepidosperma filiforme*, *Acion hookeri*, *Eurychorda complanata*, *Empodium minus*, *Sporadanthus tasmanicus*, *Xyris* spp., *Thelymitra* sp. and *Schoenus lepidosperma* subsp. *lepidosperma*. *Acacia terminalis*, *A. suaveolens* and *A. myrtifolia* may all occur, as well as *Amperea xiphoclada*, *Boronia citriodora*, *Epacris impressa*, *Leucopogon collinus*, *Gnaphalium* sp. and *Gompholobium huegelii*. Less common are *Baeckea ramosissima*, *Stylium graminifolium*, *Tetratheca pilosa*, *Pimelea linifolia*, *Platylobium triangulare*, *Calytrix tetragona*, *Sphaerolobium minus* and below *Hibbertia procumbens*, *Goodenia lanata*, *Laxmannia orientalis*, *Lindsaea* sp. and *Selaginella* sp. Near many hilltops *Blandfordia punicea* is an important and spectacular component of *Xanthorrhoea* heath, slightly wetter conditions also favouring *Sprengelia incarnata*, *Gleichenia dicarpa* and *Comesperma calymega*.

This mapping unit incorporates a number of plant communities occurring at Rocky Cape including *Lepidosperma concavum*—*Cassytha glabella*—*Gonocarpus tetragynus* heath and *Hibbertia* aff. *Procumbens*—*Xanthorrhoea australis* (Kirkpatrick 1977).

HEATH (H)

Dry, woody heath occurs as understorey in *Eucalyptus nitida* woodland or *E. nitida*/*E. obliqua*/*E. viminalis* forest. In the shade of the forests the understorey is often quite species-poor, particularly where bracken has suppressed seedling growth. *Acacia terminalis*, *Lomandra longifolia* and *Monotoca glauca* are distinguishing species, but *Pultenaea juniperina*, which is important in heaths elsewhere, is uncommon in Rocky Cape. As the heath becomes taller and passes into *Monotoca* scrub *Acacia terminalis* gives way to *A. microcarpa*. In the centre of the Park, where *Eucalyptus nitida* forms small woodland patches, the understorey and fringing heaths contain many species typical of coastal heath, but are dominated by *Leptospermum scoparium*.

Heath is generally 1.5 m tall and contains a selection of woody species that may include *Aotus ericoides*, *Calytrix tetragona*, *Pultenaea daphnoides*, *Leucopogon parviflorus*, *Dillwynia glaberrima*, *Banksia marginata*, *Leptospermum glaucescens* and *Allocasuarina monilifera*. Smaller shrubs are interspersed in the mid-layer of the heath and include *Epacris impressa*, *Drimophila cyanocarpa*, *Pimelea linifolia*, *Leucopogon collinus* and *Boronia citriodora*. The ground layer includes *Baeckea ramosissima*, *Selaginella* and *Amperea xiphoclada* as well as some or all of the monocots—*Lepidosperma concavum*, *Leptocarpus tenax*, *Eurychorda complanata*, *Acion hookeri*, *Patersonia fragilis*, *Xyris* spp. or *Sporadanthus tasmanicus*. In the higher country at the western end of the Park *Lepidosperma filiforme* may be such an important component of the heath as to be shown separately on the

detailed map as Lf. In some areas *Leptospermum scoparium* is both abundant and emergent above the heath and has been specified on the original map as L.

The communities represented by this mapping unit include *Melaleuca gibbosa*—*Argentipallium dealbatum*—*Drosera pygmaea* heath, *Banksia marginata*—*Leptospermum scoparium* heath and *Lepidosperma concavum*—*Cassytha glabella*—*Gonocephalus tetragynus* heath.

MELALEUCA SWAMP (Ma)

These swamps are confined to the coastal sand plains, where they present an even dense canopy of *Melaleuca squarrosa* 1.5 – 2 m tall. There may be some heavily overgrown *Gymnoschoenus*, and rarely the swamp clears to buttongrass moorland, but usually buttongrass is suppressed or absent. Other species include *Leptocarpus tenax*, *Eurychorda complanata*, *Leucopogon parviflora* and some *L. australis*, *Sprengelia incarnata*, *Epacris obtusifolia*, *E. impressa*, *E. lanuginosa*, *Leptospermum scoparium*, *Dillwynia glaberrima* and *Sprengelia incarnata* and below these *Hibbertia procumbens*, *Selaginella* sp. and *Schoenus lepidosperma* subsp. *lepidosperma*. Outside the Park near Rocky Cape *Sphagnum* underlies some swamps. This mapping unit incorporates some variants of the community 'common wet eastern heathy' (E.Ia) described by Jarman et al. (1988).

SPORADANTHUS WET MOORLAND (BL)

In the wettest parts of the swamps *Melaleuca* and *Gymnoschoenus* are small or absent, the vegetation is less than 1m high and is dominated by monocots such as *Leptocarpus tenax*, *Xyris operculata*, *X. muelleri*, *X. marginata*, *Lepidosperma filiforme*, *Sporadanthus tasmaniensis*, *Eupodiumia nitens* and the fern *Gleichenia diearpa*. Heath species invading from higher ground may include *Epacris obtusifolia*, *E. lanuginosa*, *Leucopogon collinus* and sometimes *Sprengelia inearia*. There may be some emergent *Leptospermum nitidum*, and small amounts of *Banera rubioides*, *Drosera* sp. and *Gnaphalium* sp. in the ground layer. This moorland type fits best within the south-western sedgy community described by Jarman et al. (1988) and has not been previously recorded in the Park.

MELALEUCA/BUTTONGRASS MOORLAND (Ma-B)

The most widespread of the moorlands occupying the main gullies and flats of the valleys and plateau of the Park are those dominated by *Melaleuca squarrosa* and *Gymnoschoenus sphaerocephalus*. This forms a fairly dense community about 1 m high. Other moorland species in this vegetation mapped include *Leptocarpus tenax*, *Eurychorda complanata*, *Xyris muelleri*, *Sporadanthus tasmaniensis*, *Lepidosperma filiforme*, *Sprengelia incarnata*, *Epacris obtusifolia*, *E. lanuginosa*,

Dillwynia einerascens, *Leptospermum scoparium* and rarely *L. nitidum*. The species assemblage for this mapping unit is very similar to that of the *Sporadanthus* wet moorlands (Bl), but is much taller and denser and is dominated by *Melaleuca* and *Gymnoschoenus*. Dense patches of *Melaleuca squarrosa* (Ma) on shaded slopes have been included in this mapping unit even though buttongrass may be absent or suppressed.

This mapping unit includes two communities that are not distinguishable on air-photos and therefore are not mapped separately. They are common wet eastern heathy moorland and lowland eastern sedgy moorland (Jarman et al. 1988). The two are distinguished by the relative abundance of heath versus graminoid species. Where the heaths have a greater abundance the community would be classified as common wet eastern heathy. Where the graminoids provide the dominant cover the community is classified as lowland eastern sedgy.

The margins of this community may be sharply defined by fire boundaries but more commonly it grades into coastal heath, heath or wet heath. In the high western parts of the Park undulating country carries a mosaic of buttongrass moorland and heath rich in *Lepidosperma filiforme* with scattered thickets of *Eucalyptus nitida*. South-east of Broadview Hill the undulating uplands carry *Melaleuca* moorland in the swales, bordered by wet heath, with *Xanthorrhoea* heath under small eucalypts on the best-drained sites.

WET HEATH (Hwb)

Dense, tangled heath to 2 m or more, dominated by *Banera rubioides* and/or *Philotheea virgata* occurs on shaded south to south-east-facing slopes within the Rocky Cape National Park and on shaded flats south of the township. Scattered small *Eucalyptus nitida* are common in wet heath and there may be scattered *Banksia serrata* at the fringes. The mapping unit fits within the community description for dry eastern heathy (Jarman et al. 1988).

Wet heath may pass laterally into *Melaleuca*/Buttongrass moorland and the two share some species. *Philotheea virgata* is usually dominant, with or without *Banera rubioides*. *Melaleuca squarrosa* may occur in wet heath and in the wettest areas *Gymnoschoenus sphaerocephalus* may be overgrown by woody species including *Dillwynia glaberrima*, *Banksia marginata*, *Leptospermum scoparium*, *L. glaucescens*, *L. nitidum*, *Acacia terminalis* and *Aotus ericoides*. *Eurychorda complanata*, *Sprengelia inearia*, *Epacris lanuginosa*, *E. impressa*, *Amperea xiphoclada*, *Patersonia fragilis*, *Schoenus lepidosperma* subsp. *lepidosperma* and *Leptocarpus tenax* grow below, and the whole is tangled through with *Calorophis* sp., *Galtonia grandis*, *Gleichenia dicarpa* and sometimes *Blandfordia punicea*.

SPHAGNUM PEATLAND (S)

A modest *Sphagnum* peatland, too small to map, occurs in swampy ground behind the shacks at Rocky Cape and is dominated by the cord rush *Leptocarpus tenax*.

COMMUNITY CONSERVATION ASSESSMENT AND MANAGEMENT

Table 2 below summarises the recorded communities for the Rocky Cape National Park. A number of the communities described in this list overlap one another. For example, a few communities described as part of the heathland survey (Kirkpatrick 1977 and Kirkpatrick & Harris 1999) match descriptions for communities described within the moorland survey (Jarman et al. 1988). Similarly, the dry coastal communities are classified using two different methods so each vegetation assemblage is described in two systems and the heathlands have been classified at two different times giving slightly different groupings. However, all communities recognised have been listed for the sake of completeness and because they inevitably describe slightly different parts of the vegetation continuum. Most of the communities in the Park are considered to be well reserved (reserved by a number of National Parks in addition to Rocky Cape National Park) and relatively widespread in Tasmania.

Nearly 80% of the Park is covered by heaths and buttongrass moorlands, which provide habitat for nearly all of the rare plants recorded in the Park. The careful management of this vegetation is critical for the maintenance of these rare species and most of the floral diversity within the Park. Rocky Cape provides the only secure reserve for one of the heath communities within the scented paper-bark wet heath group (No. 16) described by Kirkpatrick and Harris (1999), but all other moorland and heath communities are considered well reserved elsewhere. The reservation status does not necessarily indicate their abundance however, and some communities occur in quite restricted environmental niches while others are more common and widespread.

The frequency and intensity of fire are important issues in the maintenance of the heath and moorlands in the Park but the relationships between fire frequency and vegetation development still remain poorly understood. In some situations frequent firing may lead to the development of sedge-dominated moorlands, particularly on poorly drained peatland soils. On deep sands long fire-free intervals are likely to result in the invasion of tea tree scrub communities while fire intervals at too high a frequency may result in the loss of *Leptospermum* and other shrub species from the community (Kirkpatrick & Harris 1999). Published theories on vegetation fire ecology such as Ashton (1981), Noble and Slatyer (1981), Bradstock and Auld (1995), Bradstock et al. (1995) and Morrison et al. (1995) have given rise to the current plan for fire management practice. It is intended that the

reserve should be managed with irregular fire intervals within particular constraints dependent on the vegetation type (see prescriptions in *St Helens Crown Reserves Fire Management Plan*, 1999, p. 7). Fires should be between 8 and 30 years apart within heathlands and heathy woodlands and no two consecutive fire intervals should be less than 15 years and no consecutive fire intervals should be longer than 15 years.

Disease is also of critical importance but it is already very widespread throughout the Park. The interaction between fire and disease is still not understood but manipulation of fire regimes could reduce disease impact.

The coastal zone fringing the Park contains communities generally well reserved elsewhere with one exception. Kirkpatrick and Harris (1995) list *Melaleuca ericifolia* heath/scrub as poorly reserved, although they did not record its presence within the Rocky Cape National Park where it is of only small extent. Fire can be a problem in the coastal zone where dune erosion can quickly become a serious problem. In coastal scrub fire intervals should be between 10 and 50 years with no consecutive fire intervals less than 15 years (*St Helens Crown Reserves Fire Management Plan*, 1999). Weed management is of particular importance in this zone as weeds may take over native vegetation formations rapidly.

The rarest communities inhabiting the Park are the *Banksia serrata* woodlands and open forests, which have their most extensive distribution within this National Park. Under the Regional Forest Agreement (RFA) *Banksia serrata* woodland is a priority target for reservation because less than 160 ha remains in Tasmania. The target that the RFA established for inclusion within the reserve network is 100% of this woodland community, of which only 75% is currently reserved (Tasmanian-Commonwealth Joint steering committee 1997). The careful management of this community within the Park is critical for the long-term conservation of this community type (Tasmanian Vegetation Management Strategy 1998). This and other dry forest should have fire intervals between 5 and 30 years such that no two consecutive intervals are less than 15 years, and no more than two consecutive intervals of 15–30 years occur (*St Helens Crown Reserves Fire Management Plan*, 1999). Bradstock and Myerseough (1988) and Bradstock (1990) have demonstrated that fire intervals of greater than 10 years may increase the density of *Banksia serrata* provided the fire is intense enough to cause sufficient crown scorch to stimulate seed release. Furthermore, although mature *Banksia serrata* trees are able to survive and resprout following fire, fire intervals of less than nine years can lead to population declines due to the lack of fire tolerance in juvenile plants.

Old growth wet *E. nitida* forests, although still relatively widespread within the 'King' bioregion in North-west Tasmania requires increased reservation as part of the Regional Forest Agreement. CARSAG (1999) rates *E.*

nitida old growth as a high priority for reservation and the *E. nitida* wet forest community as a moderate priority. The conservation of this vegetation already within the reserve network is therefore important.

The conservation priority for old-growth *E. obliqua* wet forests is high and the conservation of *E. obliqua* wet forest communities is moderate within this bioregion (CARSAG 1999). Relatively little wet forest within the Rocky Cape National Park probably qualifies as old growth but it does provide an important representation of wet forest communities for this bioregion where such wet forest is currently poorly represented in the reserve network.

North et al. 1998 list wet *Eucalyptus brookeriana* forest as occurring within the Rocky Cape National Park, but these are mapped here as *E. ovata* forests. This forest is also a priority target for reservation due to the overall rarity of this vegetation type (Tasmania-Commonwealth Joint Steering Committee 1997). Fire intervals for wet forest vegetation should be in excess of 25 years (*St Helens Crown Reserves Fire Management Plan*, 1999). Wet forests occupy less than 3% of the Park.

The dry heathy and sedgy *E. nitida* communities are of low reservation priority within the King bioregion (CARSAG 1999). This is because they are well reserved within Rocky Cape National Park, Mt Cameron West

Aboriginal Site and West Point Aboriginal Site as well as having secure viable populations within five RAPs (North et al. 1998). The dry shrubby *E. obliqua* forests are also well represented, being reserved not only at Rocky Cape but also in the Asbestos Range National Park and within at least three RAPs (North et al. 1998).

The coastal shrubby *E. viminalis* forests are grouped together with *E. globulus* forests and are a high priority for reservation and conservation for both their old-growth values and community values (CARSAG 1999).

The coastal *Melaleuca* swamp forests are another priority for conservation and reservation within the King bioregion (Tasmanian Vegetation Management Strategy 1998). The reservation target for this community is 100%, of which only 37% is currently included within the reserve network (Tasmanian-Commonwealth Joint Steering Committee 1997). They occupy less than 2% of the Rocky Cape National Park. Elsewhere this community is reserved only in the Lavinia Nature Reserve (North et al. 1998). Fire intervals for this vegetation are as recommended for wet forests.

Table 2: List of identified plant communities in the Rocky Cape National Park and their corresponding mapping units.

Communities recorded	code*	Reference	Mapping unit	Unit code
FOREST, WOODLANDS & SCRUB				
<i>Eucalyptus nitida</i> - <i>Pomaderris apetala</i> - <i>Dicksonia antarctica</i> wet forest with <i>Melaleuca</i> - <i>Leptospermum</i> scrub understorey heathy (& sedgy) <i>E. nitida</i> woodland/Mallee peppermint	nit1 (NT)	Kirkpatrick et al. 1988	<i>Eucalyptus nitida</i> forest over wet scrub <u>or</u> <i>Monotoca</i> scrub	En-wf <u>or</u> En-wm/Lt
Argillaceous Dry shrubby <i>E. obliqua</i> forest	4d & 3b (N) (WET BR10)	Duncan & Brown 1985 Kirkpatrick and Harris 1999	<i>E. nitida</i> (+/- <i>E. ovata</i>) woodland over heath	En-H <u>or</u> En/Eo-H
<i>E. obliqua</i> - <i>Melaleuca</i> <i>squarrosa</i> - <i>Monotoca</i> <i>glaucia</i> wet forest coastal shrubby <i>E. viminalis</i>	5a(ii) OB0111 (OT)	Duncan & Brown 1985 Kirkpatrick et al. 1988	<i>E. obliqua</i> forest over wet scrub <u>or</u> <i>Monotoca</i> scrub	Eo/En-hm
<i>Banksia serrata</i> open forest/woodland	5j (G) (BS)	Duncan & Brown 1985 Kirkpatrick 1991	<i>E. viminalis</i> over heath <i>Banksia serrata</i> woodland (+/- <i>E. nitida</i>) over heath	Ev-H
depauperate coastal paperbark swamp forest	C2 (ME)	Pannell 1992	<i>Melaleuca</i> swamp forest <u>or</u> coastal shrubbery	Mt <u>or</u> LCS

* Codes are those originally used for the community unless bracketed. Codes in brackets refer to codes used within the RFA and RAP process.

Communities recorded	code*	Reference	Mapping unit	Unit code
COASTAL VEGETATION				
<i>Melaleuca ericifolia</i> heath/scrub	Me	Kirkpatrick & Harris 1995	coastal shrubbery	LCS
<i>Juncus kraussii</i> rushland	JK	Kirkpatrick & Harris 1995	NA	not mapped
<i>Austrostipa littoralis</i> grassland	Al	Kirkpatrick & Harris 1995	NA	not mapped
<i>Austrostipa stipoides</i> tussock grassland	Sst	Kirkpatrick & Harris 1995	NA	not mapped
<i>Acacia sophorae</i> heath/scrub	As	Kirkpatrick & Harris 1995	beach-back shrubbery	Acs
<i>Correa backhouseana</i> heath	Cba	Kirkpatrick & Harris 1995	beach-back shrubbery	Acs
<i>Acaea sophorae</i> — <i>Helichrysum paralium</i> shrubland	10/Hp	Kirkpatrick & Harris 1995	beach-back shrubbery	Acs
<i>Alyxia buxifolia</i> heath	Ab	Kirkpatrick & Harris 1995	coastal shrubbery	LCS
<i>Banksia marginata</i> heath/scrub	Bm	Kirkpatrick & Harris 1995	coastal shrubbery	LCS
<i>Correa baekhouseana</i> heath	Cba	Kirkpatrick & Harris 1995	coastal shrubbery	LCS
<i>Leptospermum scoparium</i> heath/scrub	Ls	Kirkpatrick & Harris 1995	coastal shrubbery	LCS
<i>Myoporum insulare</i> shrubland	Mi	Kirkpatrick & Harris 1995	coastal shrubbery	LCS
<i>Leucopogon parviflorus</i> - <i>Lobelia alata</i> - <i>Isolepis nodosa</i> shrubland	38/Cab	Kirkpatrick & Harris 1995	coastal shrubbery	LCS
HEATHS				
<i>Melaleuca gibbosa</i> - <i>Argentipallium dealbatum</i> - <i>Drosera pygmaea</i> heath	29	Kirkpatrick 1977	heath	H
<i>Banksia marginata</i> - <i>Leptospermum scoparium</i> heath/honeysuckle dry heath	37; 5 & 11	Kirkpatrick 1977 Kirkpatrick & Harris 1999	heath	H
Manuka dry heath	17	Kirkpatrick & Harris 1999	heath	H
<i>Lepidosperma coneavum</i> - <i>Cassytha glabella</i> - <i>Gonocarpus</i> <i>tetragynus</i> heath	17	Kirkpatrick 1977	heath	H
<i>Austrodanthonia-Xanthosia</i> <i>pusilla</i> - <i>Helichrysum</i> <i>scorpioides</i> heath	18H	Kirkpatrick 1977	coastal heath	Hc
Dwarf oak dry heath	18 & 20	Kirkpatrick & Harris 1999	<i>Xanthorrhoea</i> heath or heath	Hx or H
<i>Hibbertia aff procumbens</i> - <i>Xanthorrhoea australis</i> heath	20	Kirkpatrick 1977	<i>Xanthorrhoea</i> heath or coastal heath	Hx or Hc
<i>Lepidosperma eoneavum</i> - <i>Gonocarpus tetragynus</i> heath	33	Kirkpatrick 1977	<i>Xanthorrhoea</i> heath	Hx
<i>Leptospermum glaucescens</i> - <i>Hibbertia procumbens</i> heath	12	Kirkpatrick 1977	<i>Leptospermum</i> <i>glaucescens</i> heath	Lg
<i>Leptospermum glaucescens</i> - <i>Lepidosperma filiforme</i> heath	13	Kirkpatrick 1977	<i>Leptospermum</i> <i>glaucescens</i> heath	Lg

Communities recorded	code*	Reference	Mapping unit	Unit code
<i>Lomandra longifolia</i> - <i>Astrolobium huonifolium</i> hermland	18C	Kirkpatrick & Harris 1995	<i>Lomandra</i> heath	Lo
MOORLANDS				
South-western sedgy moorland	B5	Jarman et al. 1988	<i>Sporadanthus</i> wet moorland	Bl
Common wet eastern heathy moorland	E1a	Jarman et al. 1988	<i>Melaleuca squarrosa</i> swamp	Ma
<i>Sprengelia incarnata</i> - <i>Grevillea</i> <i>sphaerocephala</i> - <i>Xyris</i> heath/moorland	5	Kirkpatrick 1977	<i>Melaleuca</i> /buttongrass moorland	B-Ma
Common wet eastern heathy moorland	E1a	Jarman et al. 1988	<i>Melaleuca</i> /buttongrass moorland	Ma-B, B-Ma
Lowland eastern sedgy moorland	E2	Jarman et al. 1988	<i>Melaleuca</i> buttongrass moorland	Ma-B, B-Ma
<i>Sprengelia incarnata</i> - <i>Bauera</i> <i>rubioides</i> - <i>Lepidosperma</i> <i>filiforme</i> heath	4	Kirkpatrick 1977	<i>Melaleuca</i> /buttongrass moorland	Ma-B, B-Ma
<i>Schoenus</i> <i>lepidosperma</i> subsp. <i>Lepidosperma</i> - <i>Epacris</i> <i>lanuginosa</i> - <i>Empodisma minus</i> heath	2	Kirkpatrick 1977	<i>Melaleuca</i> /buttongrass moorland	Ma-B, B-Ma
Purple honeymyrtle wet heath	60	Kirkpatrick & Harris 1999	wet heath	Hwb
Dry eastern heathy moorland	E5	Jarman et al. 1988	wet heath	Hwb
Scented Paper Bark wet heath	16, 52, 53, 58 & 59	Kirkpatrick & Harris 1999		

CONCLUSION

Although it is a small National Park, Rocky Cape has a diverse array of plant species and communities, some of which are rare and warrant special management to ensure their long-term perpetuation. An important function of the Rocky Cape National Park is to ensure the long-term protection of the heaths, woodlands and wet forests of the region. It is important for the perpetuation of the endangered orchid species *Diuris palustris*, *Genoplesium brachystachyum* and *Thelymitra aurea* and the other rare plant species such as *Banksia serrata*, *Tetratheca ciliata*, *Goodenia geniculata*, *Lasiopetalum discolor*, *Lotus australis*, *Spyridium parvifolium*, *Zieria veronicae* and other rare orchids that occur within the Park. Any infrastructure development needs to take rare plant populations and communities into account to ensure their range is not reduced and particular attention needs to be paid to fire and disease management within the Park.

The documentation of plant species and communities occurring within reserves is important if such areas are to be managed appropriately for conservation. This paper provides information for the improved management of the Rocky Cape National Park.

ACKNOWLEDGEMENTS

Staff of the Nature Conservation Branch, the DPIWE GIS section and volunteers provided assistance with field survey work and data entry. Maria Moore was responsible for GIS map production work, which was undertaken as part of the Regional Forest Agreement database project. Stephen Harris and Louise Gilfedder provided valuable information on conservation status of plant species and communities and assisted with editing draft manuscripts. Hans Wapstra verified the orchid records for the reserve. The Tasmanian Herbarium provided access to their collection database and assistance with plant identifications following the botanical surveys. Roger Ling produced the location map (Figure 1).

ENDNOTES

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4. Briggs and Leigh 1988
5. See Flora Advisory Committee, 1994
6. No recent records of *Styphelia adscendens* exist for the Rocky Cape National Park.
7. No recent records of *Mentha diemenica* exist in the National Park.
8. *Euphrasia scabra* is now presumed to be extinct in the National Park.
9. J Johnson, photo p. 220, *Australian Orchid Research*, vol 3, 1998
10. *Cyathodes cunninghamii* is now presumed extinct within the park.

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APPENDIX 1
Sources of GTSPOT data used to compile plant
inventory:

Table 1: Large project data sets used from within GTSpot:

GTSPOT Collection Label	GTSPOT Project Label	Alternative Collection Name	Data Provider
as	fern2	fern atlas	M Garrett
botatlas	bota	botanical atlas	Forestry Tasmania
cra-rfa	rtbg-rfa		Royal Tasmanian Botanical Gardens
deeoda	coast	coastal survey	Kirkpatrick, J & S Harris University of Tas, P&WS
decoda	hland	heathland survey	Kirkpatrick, J & S Harris University of Tas, P&WS
decoda	wetforests	wet forest survey	Kirkpatrick, J University of Tas.
Herbarium	rareherb	herbarium records for rare species	Tasmanian Herbarium
oa	oafield	orchid atlas—field survey records	Vegetation Management Section RMC, DPIWE
oa	oaherb	orchid atlas—herbarium records	Tasmanian Herbarium
pir	pir	reservation and conservation status of higher plants database	Vegetation Management Section RMC, DPIWE
tasherb	tasherb-rfa	Tasmanian herbarium - RFA	Tasmanian Herbarium
tfh	mn	TASFORHAB—Mark Neyland's plots	GIS section, P&WS
tp	re	Rocky Cape survey 1996	GIS section, P&WS
tp	rc95	Rocky Cape survey 1995	GIS section, P&WS
tp	swp	swift parrot survey	GIS section, P&WS
tp	tp	TASPAWS general collection	GIS section, P&WS

Table 2: List of recorders of GTSpot data that contributed to the Rocky Cape plant census.

Atkinson, HB	Gilfedder, L	Muir, TB
Balmer, J	Gunn, RC	North, A
Brown, B	Harris, K	Olsen, AM
Brown, P	Harris, S	Palmer, P
Buchanan, AM	Hawkes, D	Reed, C
Cameron, M	Hefferon, P	Reid, BG
Campbell, J	Hoeking, G	Rodway, L
Collier, P	Hyatt, Lalani	Rubenach, L
Corbett, Sib	Johnson, J	Tonelli, P
Curtis, WM	Jones, DL	Willis, JH
Davies, FE	Kirkpatrick, JB	Wilson, KL
Dudman, B	Messmer, CA	Ziegeler, D
Firth, MJ	Milligan, J	
Garrett, M	Minehin, R	

APPENDIX 2

Species inventory for Rocky Cape National Park

1. Plant distribution: i = introduced species, i^g = introduced weedy species found in garden situations within the National Park. En = endemic to Tasmania
2. Listing under the *Threatened Species Protection Act 1995*, '5' plants listed as rare on schedule 5; '3' Plants listed as endangered on schedule 3.1 and also Conservation status listing by Flora Advisory Committee, 1994, R = listed nationally as rare⁴ r1 = rare taxa⁵ which have a range less than 100 x 100 km in Tasmania, r2= rare taxa that occur in 20 or less 10 x 10 km Australian Map Grid Squares in Tasmania. r3= rare taxa that do not fit the requirements of r1 or r2 but have small and/or localised populations in Tasmania.
3. Y indicates a record exists on GTSPOT for this species.
4. Where a Herbarium record for Rocky Cape exists on the Tasmanian Herbarium database the record number is given for the record. Records for which Rocky Cape
- specimens are known to occur in a Herbarium but are not recorded within the Tasmanian Herbarium database an 'H' is recorded.
5. Taxa recorded for Rocky Cape within the Reservation and Conservation Database (Kirkpatrick et al. 1991) are indicated by '1'.
6. Plants recorded on Firth's census for Rocky Cape (Firth 1971) are listed with an 'F'.
7. When a plant record for the Park was based on a single observation recorded within GTSPOT, the Herbarium database, Firth 1971 or the Burnie Field Naturalists Club Rocky Cape Plant List, then the observer and date of the record, the collection name or reference to Firth is listed. (Collections: 'BFN'= unpublished Burnie Field Naturalists' plant list for Rocky Cape 2001, 'botany' = a Forestry Tasmania database; 'coastal' = coastal survey see Kirkpatrick and Harris 1995; 'FA' = fern atlas see Garrett 1996; 'heath' = heathland survey see Kirkpatrick and Harris 1999; 'OA' = Orchid Atlas see Ziegeler et al. 1996; 'R&C' = Reservation and Conservation Database 1996 see Kirkpatrick et al. 1991; and 'WF' = wet forest survey see Kirkpatrick et al. 1988.)

Species Name and Authority	1	2	3	4	5	6	7
DICOTYLEDONAE							
Aizoaceae							
<i>Carpobrotus rossii</i> (Haw.) Schwantes			y		1	F	
<i>Displyma crassifolium</i> (L.) L.Bolus						F	BFN
<i>Tetragonia tetragonoides</i> (Pallas) Kuntze		r2	y				
Apiaceae							
<i>Apium prostratum</i> Labill. Ex Vent.			y	115742	1	F	
<i>Centella cordifolia</i> (Hook.f.) Nannf.			y		1	F	
<i>Daucus glochidiatus</i> (Labill.) Fischer et al.			y		1	F	
<i>Hydrocotyle hirta</i> R.Br. ex A.Rieh.			y	308261		F	
<i>Hydrocotyle muscosa</i> R.Br. ex A.Rieh.						F	
<i>Oreomyrrhis eriopoda</i> (DC.) Hook.f.			y	23518			
<i>Trachymene anisocarpa</i> (Turcz.) Burti			y	116865	1	F	
<i>Xanthosia dissecta</i> Hook.f.			y	4462	1		
<i>Xanthosia pilosa</i> Rudge			y	4489	1	F	
<i>Xanthosia pusilla</i> Bunge			y	116387	1	F	
<i>Xanthosia tridentata</i> DC.			y	116392	1	F	
Apocynaceae							
<i>Alyxia buxifolia</i> R.Br.			y	303827		F	
<i>Vinca major</i> L.	i ^g		y				Nicholson 1999
Asteraceae							
<i>Actites megalocarpa</i> (Hook.f.) Lander			y			F	
<i>Argentipallium dealbatum</i> (Labill.) Paul G Wilson			y	11479	1	F	
<i>Bracteantha bicolor</i> (Lindl.) Anderb. & L.Haegi						F	
<i>Cassinia aculeata</i> (Labill.) R.Br.			y			F	
<i>Chrysoccephalum apiculatum</i> (Labill.) Steetz						F	
<i>Cotula australis</i> (Sieber ex Sprengel) Hook.f.			y			F	Firth 1971

⁴Briggs and Leigh 1988⁵See Flora Advisory Committee, 1994

Species Name and Authority	1	2	3	4	5	6	7
<i>Delairea odorata</i> Lemaire	i		y	115760			BFN
<i>Enchiton collinus</i> Cass.					F		Firth 1971
<i>Euchiton involucratus</i> (JH Willis) A Anderb.		r2	y		F		
<i>Gamochaeta purpurea</i> (L.) Cabrera			y		F		
<i>Helichrysum scorpioides</i> Labill.			y		F		
<i>Hypochoeris radicata</i> L.	i		y				
<i>Lagenifera stipitata</i> (Labill.) Druce			y		1	F	
<i>Leptinella reptans</i> (Benth.) D Lloyd & C Webb				52752		F	Firth 1971
<i>Leucophyta brownei</i> Cass.			y		F		
<i>Olearia argophylla</i> (Labill.) Benth.							BFN
<i>Olearia lepidophylla</i> (Pers.) Benth.							BFN
<i>Olearia lirata</i> (Sims) Hutch.			y				
<i>Olearia rauvlosa</i> (Labill.) Benth.			y		1	F	
<i>Olearia stellulata</i> (Labill.) DC.							
<i>Osteospermum fruticosum</i>	i		y				Nicholson 1999
<i>Ozothamnus ferrugineus</i> (Labill.) Sweet			y			F	
<i>Ozothamnus rosmarinifolius</i> (Labill.) Sweet							BFN
<i>Pseudognaphalium luteo-album</i> (L.) Hilliard & BL Burtt.				116864		F	
<i>Senecio biserratus</i> Belcher			y	115761			
<i>Senecio glomeratus</i> Desf. ex. Poiret				111796			CJ Adams 1977
<i>Senecio hispidulus</i> A Rich.			y		1	F	
<i>Senecio lanatus</i> Forst.f. ex Willd.			y	14660		F	
<i>Senecio lineariifolius</i> A Rich.			y		1	F	
<i>Senecio minimus</i> Poiret				14963		F	
<i>Sonchus asper</i> (L.) Hill	i		y				Gilfedder 1995
<i>Sonchus oleraceus</i> L.	i		y				Gilfedder 1995
<i>Taraxacum officinale</i> Weber	i		y				Gilfedder 1995
Brassicaceae							
<i>Cakile edentula</i> (Bigelow) Hook.	i		y				Harris 1992
<i>Cavendine gnuuii</i> Hewson						F	Firth 1971
Campanulaceae							
<i>Lobelia alata</i> Labill.			y	327118		F	
<i>Pratia pedunculata</i> (R.Br.) Benth.			y			F	
<i>Wahlenbergia gracilenta</i> Loth.						F	
<i>Wahlenbergia gracilis</i> (Forst.f.) Schrader.					1		Firth 1971
Caprifoliaceae							R&C
<i>Sambucus gaudichandiana</i> DC.			y	115715		F	
<i>Stellaria media</i> (L.) Cyrillo	i					F	
Caryophyllaceae							
<i>Colobanthus apetalus</i> (Labill.) Druce	i						BFN
<i>Sagina maritima</i> G Don	i						BFN
Casuarinaceae							
<i>Allocasuarina monilifera</i> (L Johnson) L Johnson			y	8908	1		
<i>Allocasuarina verticillata</i> (Lam.) L Johnson			y				
<i>Allocasuarina zephyrea</i> L Johnson	En						BFN
Chenopodiaceae							
<i>Atriplex billardierei</i> (Moq.) Hook.f.							BFN
<i>Atriplex cinerea</i> Poiret							BFN
<i>Rhagodia candolleana</i> var. <i>candolleana</i> Moq.			y				
<i>Sarcocornia quinqueflora</i> (Bunge ex Ung.-Sternb.) AJ Scott			y	x			coastal
Clusiaceae							
<i>Hypericum gramineum</i> Forst.f.					1		R&C

Species Name and Authority	1	2	3	4	5	6	7
Convolvulaceae						F	Firth 1971
<i>Convolvulus erubescens</i> Sims			y			F	
<i>Dichondra repens</i> Forst. & Forst.f.						F	
Crassulaceae							
<i>Aeonium</i> sp.	i		y		1	F	Nicholson 1999
<i>Crassula decumbens</i> Thunb.					1	F	
<i>Crassula sieberiana</i> var. <i>sieberiana</i>			y				
(Schultes & Schultes.f.) Druce							
Cunoniaceae							
<i>Bauera rubioides</i> Andrews			y	400399	1		
Dilleniaceae							
<i>Hibbertia acicularis</i> (Labill.) F Muell.			y	97234	1	F	
<i>Hibbertia hirsuta</i> (Hook.) Benth.	En		y				heath
<i>Hibbertia hirticalyx</i> Toelken.			y				Gilfedder 1995
<i>Hibbertia procumbens</i> (Labill.) DC.			y	303839	1	F	
<i>Hibbertia prostrata</i> Hook.			y	115717	1	F	
<i>Hibbertia riparia</i> (R.Br. ex DC.) Hoogl.			y		1		
<i>Hibbertia sericea</i> (R.Br. ex DC.) Benth.				97206		F	
Droseraceae							
<i>Drosera binata</i> Labill.			y		1	F	
<i>Drosera macrantha</i> Endl.			y	3423	1		
<i>Drosera peltata</i> subsp. <i>auriculata</i>			y		1	F	
(Backh. ex Planchon) Conn.							
<i>Drosera peltata</i> subsp. <i>peltata</i> Thunb.							BN
<i>Drosera pygmaea</i> DC.			y		1	F	
<i>Drosera spatulata</i> Labill.			y	42668	1	F	
Epacridaceae							
<i>Astroloma lunifusum</i> (Cav.) R.Br.			y	3951	1	F	
<i>Brachyloma ciliatum</i> (R.Br.) Benth.			y	116393	1		
<i>Cyathodes juniperina</i> (Forst.) Druce.			y	116955	1	F	
<i>Epacris impressa</i> Labill.			y	116866	1	F	
<i>Epacris lanuginosa</i> Labill.			y	301872	1	F	
<i>Epacris obtusifolia</i> Smith			y	301879	1	F	
<i>Leucopogon australis</i> R.Br.			y	119367	1	F	
<i>Leucopogon collinus</i> (Labill.) R.Br.			y	47798	1	F	
<i>Leucopogon ericoides</i> (Smith) R.Br.			y	97780	1	F	
<i>Leucopogon parviflorus</i> (Andrews) Lindl.			y	97771	1	F	
<i>Leucopogon virgatus</i> (Labill.) R.Br.			y	97185	1	F	
<i>Monotoca glauca</i> (Labill.) Druce			y	307550			
<i>Sprengelia incarnata</i> Smith			y	307197	1	F	
<i>Styphelia adscendens</i> R.Br. ⁶			y	5826			Gunn 1838
Ericaceae							
<i>Erica lusitanica</i>	i*		y				Nicholson 1999
<i>Gaultheria hispida</i> R.Br.	En				1		R&C
Euphorbiaceae							
<i>Amperea xiphoclada</i> (Sieber ex Sprengel) Druce			y	28209	1		
<i>Euphorbia paralias</i> L.	i*		y				Nicholson 1999
<i>Phyllanthus gunnii</i> Hook.f.							BN
<i>Poranthera microphylla</i> Brongn.			y		1		
Fabaceae							
<i>Almaleea subumbellata</i> (Hook.) Crisp & P Weston							BN
<i>Aotus ericoides</i> (Vent.) G Don			y	97714	1	F	
<i>Bossiaea cinerea</i> R.Br.			y	64904	1	F	

⁶ No recent records of *Styphelia adscendens* exist for the Rocky Cape National Park.

Species Name and Authority	1	2	3	4	5	6	7
<i>Bossiaea cordigera</i> Benth. ex Hook.f.			y		1	F	
<i>Bossiaea prostrata</i> R.Br.			y		1		
<i>Bossiaea riparia</i> A Cunn. ex Benth.			y				Gilfedder 1995 BFN
<i>Daviesia ulicifolia</i> Andrews							
<i>Dillwynia cinerascens</i> R.Br. ex Sims			y		1	F	
<i>Dillwynia glaberrima</i> Smith			y		1	F	
<i>Dillwynia sericea</i> A Cunn			y	97782	1	F	
<i>Dolichos</i> sp.	i ^g		y				Nicholson 1999
<i>Genista monspessulana</i> (L.) L Johnson	i ^g		y				Nicholson 1999
<i>Gompholobium linegelii</i> Benth.			y	10641	1	F	
<i>Goodia lotifolia</i> Salisb.			y		1		
<i>Indigofera australis</i> Willd.							BFN
<i>Kennedia prostrata</i> R.Br.					1	F	
<i>Lotus australis</i> Andrews	5	y	115762			F	
<i>Lupinus arboreus</i> Sims	i	r2	y				Neyland 1985
<i>Phyllota diffusa</i> (Hook.f.) F Muell.	En	r2	y	115737	1		
<i>Platylobium obtusangulum</i> Hook.				115714	1	F	
<i>Platylobium triangulare</i> R.Br.			y	11567	1		
<i>Psoralcea pinnata</i> L.	i ^g		y				Nicholson 1999
<i>Pultenaea daphnoides obcordata</i> J Wendl.			y			F	
<i>Pultenaea dentata</i> Labill.				302179		F	
<i>Pultenaea gunnii</i>			y				
<i>Pultenaea juniperina</i> Labill.			y	30925			
<i>Sphaerolobium minus</i> Labill.						F	
<i>Trifolium dubium</i> Sibth.	i		y				Firth 1971
<i>Ulex europeus</i> L.	i						Gilfedder 1995
Fumariaceae							BFN
<i>Fumaria muralis</i> Sonder ex Koch	i			60184			Morris 1979
Gentianaceae							
<i>Centaurium spicatum</i> (L.) Fritsch						F	Firth 1971
Geraniaceae							
<i>Geranium solanderi</i> Carolin			y		1	F	
<i>Pelargonium australe</i> Willd.			y			F	
Goodeniaceae							
<i>Goodenia geniculata</i> R.Br.	5	r2			1	F	
<i>Goodenia ovata</i> Smith			y				
<i>Scaevola hookeri</i> (Vriesc) F Muell. ex Hook.f.							BFN
<i>Selliera radicans</i> Cav.							BFN
Haloragaceae							
<i>Gonocarpus micranthus</i> var. <i>micranthus</i> Thunb.			y		1	F	
<i>Gonocarpus tetragynus</i> Labill.			y		1	F	
<i>Gonocarpus teucrioides</i> DC.			y			F	
Lamiaceae							
<i>Ajuga australis</i> R.Br.			y			F	Firth 1971
<i>Mentha diemenica</i> Sprengel							Milligan 1842 ⁷
<i>Prunella vulgaris</i> L.	i		y				Gilfedder 1995

⁷No recent records of *Mentha diemenica* exist in the National Park.

Species Name and Authority	1	2	3	4	5	6	7
Lauraceae							
<i>Cassytha glabella</i> R.Br.			y	407997	1		
<i>Cassytha melantha</i> R.Br.			y	115734	1		
<i>Cassytha pubescens</i> R.Br.			y				
Lentibulariaceae							
<i>Utricularia dichotoma</i> Labill.			y		1	F	
<i>Utricularia lateriflora</i> R.Br.			y		1	F	
Linaceae							
<i>Linum marginale</i> A Cunn. ex Planehon						F	
Loganiaceae							
<i>Mitrasacme pilosa</i> Labill. var. <i>stuartii</i> Hook.f.			y	22569	1	F	
Menyanthaceae							
<i>Villarsia reniformis</i> R.Br.			y			F	
Mimosaceae							
<i>Acacia genistifolia</i> Link			y		1		
<i>Acacia melanoxylon</i> R.Br.			y			F	
<i>Acacia mucronata</i> var. <i>dependens</i> Willd. ex Wendl.f.	En	5	y				
<i>Acacia mucronata</i> var. <i>mucronata</i> Willd. ex Wendl.f.		r2	y	116867	1	F	
<i>Acacia myrtifolia</i> (Smith) Willd.			y	97718	1	F	
<i>Acacia sophorae</i> (Labill.) R.Br.			y			F	
<i>Acacia stricta</i> (Andrews) Willd.			y			F	
<i>Acacia suaveolens</i> (Smith) Willd.			y	29771	1	F	
<i>Acacia terminalis</i> (Salisb.) Maebr.		5	y	7906	1	F	
<i>Acacia ulicifolia</i> (Salisb.) Court		r2	y	119360	1		
<i>Acacia verticillata</i> var. <i>latifolia</i> (L'Hérit) Willd.			y				WF
<i>Acacia verticillata</i> var. <i>ovoidea</i> (L'Hérit.) Willd.			y		1	F	
<i>Acacia verticillata</i> var. <i>verticillata</i> (L'Hérit.) Willd.			y	97203	1		
Monimiaceae							
<i>Atherosperma moschatum</i> Labill.							BN
Myrtaceae							
<i>Baeckea leptocaulis</i> Hook.f. En				100153	1		
<i>Baeckea ramosissima</i> A Cunn.			y	97764	1	F	
<i>Calytrix tetragona</i> Labill.			y	13725	1	F	
<i>Eucalyptus amygdalina</i> Labill.			y	14065	1		
<i>Eucalyptus nitida</i> Hook.f.			y	13761	1	F	
<i>Eucalyptus obliqua</i> L'Hérit.			y				
<i>Eucalyptus ovata</i> Labill.			y	61645		F	
<i>Eucalyptus viminalis</i> var. <i>viminalis</i> Labill.			y				
<i>Leptospermum glaucescens</i> S Schauer			y	43782	1	F	
<i>Leptospermum laevigatum</i>			y				
<i>Leptospermum lanigerum</i> (Aiton) Smith			y	18267*			
<i>Leptospermum nitidum</i> Hook.f.			y	98852	1		
<i>Leptospermum riparium</i> Dl Morris				28200			heath
<i>Leptospermum scoparium</i> var. <i>eximium</i> Forst. & Forst.f.			y				Richley
<i>Leptospermum scoparium</i> var. <i>scoparium</i> Forst. & Forst.f.			y	303804		F	1975
<i>Melaleuca ericifolia</i> Smith			y				
<i>Melaleuca gibbosa</i> Labill.			y		1	F	
<i>Melaleuca squamea</i> Labill.			y		1	F	
<i>Melaleuca squarrosa</i> Donn ex Smith			y	111800	1	F	
Oleaceae							
<i>Ligustrum vulgare</i> L.	i		y				BN
<i>Notelaea ligustrina</i> Vent.							Balmer 1992
Onagraceae							
<i>Epilobium billardierianum</i> Sér. ex DC.						F	Firth 1971

Species Name and Authority	1	2	3	4	5	6	7
Oxalidaceae							
<i>Oxalis corniculata corniculata</i> L.	i		y			F	
Pittosporaceae							
<i>Billardiera longiflora</i> var. <i>longiflora</i> Labill.			y			F	
<i>Billardiera longiflora</i> var. <i>ovalis</i> (Lindley) E Bennett			y			F	BN
<i>Bursaria spinosa</i> Cav.			y			F	
<i>Rhytidosporum procumbens</i> (Hook.) F Muell.			y		1	F	
Plantaginaceae							
<i>Plantago coronopus</i> L.	i		y				Gilfedder 1995
<i>Plantago lanceolata</i> L.	i		y				Gilfedder 1995
Polygalaceae							
<i>Comesperma calymega</i> Labill.			y		1	F	
<i>Comesperma retusum</i> Labill.			y			F	
<i>Comesperma volnibile</i> Labill.			y			F	
<i>Polygala myrtifolia</i> L.	i ^g		y				Nieholson 1999
Portulaceae							
<i>Calandrinia calyptrata</i> Hook.f.			y		1	F	
Primulaceae							
<i>Anagallis arvensis</i> L.	i		y				
<i>Samolus repens</i> (Forst. & Forst.f.) Pers.			y			F	
Proteaceae							
<i>Banksia marginata</i> Cav.			y	20049	1		
<i>Banksia serrata</i> L.f.		5	y	303810	1		
<i>Grevillea</i> 'poorinda' hybrid	i ^g	r2	y				Nieholson 1999
<i>Hakea decurrens</i> subsp. <i>physocarpa</i> WR Barker				126548			
<i>Lomatia tinctoria</i> (Labill.) R.Br.	En		y		1		
<i>Persoonia juniperina</i> Labill.			y	320837	1		
<i>Persoonia juniperina</i> var. <i>ulicina</i> Meissner				300419	1		
Ranunculaceae							
<i>Clematis aristata</i> R.Br. ex DC.			y				
<i>Clematis microphylla</i> DC.			y			F	Firth 1971
Rhamnaceae							
<i>Pomaderris apetala</i> Labill.			y	107755	1	F	
<i>Pomaderris aspera</i> Sieber ex DC.			y		1		
<i>Pomaderris elliptica</i> Labill.			y	21260			
<i>Pomaderris pilifera</i> Wakef.							BN
<i>Spyridium parvifolium</i> var. <i>parvifolium</i> (Hook.) F Muell.	5	r2	y	42100	1		
Rosaceae	u						
<i>Acaea novae-zelandiae</i> Kirk			y			F	
<i>Acaea ovina</i> var. <i>velutina</i> Orch.			y			F	Firth 1971
<i>Rubus fruticosus</i> L.	i		y				
<i>Rubus parvifolius</i> L.							BN
Rubiaceae							
<i>Coprosma hirtella</i> Labill.			y			F	
<i>Coprosma quadrifida</i> (Labill.) Robinson			y				
<i>Coprosma repens</i> A Rieh.	i		y				Balmer 1992
<i>Galium australe</i> DC			y		1	F	
<i>Opercularia varia</i> Hook.f.			y		1	F	
Rutaceae							
<i>Boronia anemonifolia</i> A.Cunn.			y	116853	1	F	

Species Name and Authority	1	2	3	4	5	6	7
<i>Boronia nana</i> Hook.			y	4586	1	F	
<i>Boronia parviflora</i> Smith			y	1	F		
<i>Boronia pilosa</i> var. <i>laricifolia</i> Labill.				29731	1	F	
<i>Boronia pilosa</i> var. <i>pilosa</i> Labill.			y	411063	1		
<i>Correa alba</i> Andrews				97719		F	
<i>Correa backhouseana</i> Hook.			y	28905	1	F	
<i>Nematolepis squamea</i> subsp. <i>squamea</i> (Labill.) Paul G Wilson							BNF
<i>Philotricha virgata</i> (Hook.f.) Paul G Wilson			y	303586	1	F	
<i>Zieria arborescens</i> Sims			y	9132			
<i>Zieria veronicae</i> (F Muell.) Benth.	5	r2					Curtis 1948
Santalaceae							
<i>Exocarpos</i> sp			y				
<i>Leptomeria drupacea</i> (Labill.) Druee			y				
Serophulariaceae							
<i>Derwentia derwentiana</i> (Andrews) B Briggs & Ehrend.			y		1	F	
<i>Digitalis purpurea</i> L.	i*		y				Nicholson 1999
<i>Euphrasia scabra</i> R.Br. ⁸		3.1		22158			Milligan 1842
<i>Mazus pumilio</i> R.Br.	i	e		22276*			BNF
<i>Parentucellia viscosa</i> (L.) Caruel							Curtis 1948
Solanaceae							
<i>Solanum laciniatum</i> Aiton						F	Firth 1971
Stackhousiaceae							
<i>Stackhousia spathulata</i> Sieber ex Sprengel	r2					F	Firth 1971
<i>Stackhousia monogyna</i> Labill.			y			F	
Sterculiaceae							
<i>Lasiopetalum discolor</i> Hook.	5	r2	y	22672			
<i>Lasiopetalum banerii</i> Steetz	5						BNF
<i>Lasiopetalum macrophyllum</i> Graham			y	22661	1		
Styliidiaceae							
<i>Stylium graminifolium</i> Sw.			y		1	F	
Thymelaeaceae							
<i>Pimelea lumnialis</i> R.Br.			y				
<i>Pimelea linifolia</i> subsp. <i>linifolia</i> Smith.			y		1		
<i>Pimelea linifolia</i> subsp. <i>linoides</i> (Cunn.) Threlfall							BNF
Tremandraceae							
<i>Tetratheca ciliata</i> Lindl.	5	r1	y	23267	1	F	
<i>Tetratheca labillardierei</i> J Thompson							
<i>Tetratheca pilosa</i> Labill.			y	320220	1	F	Firth 1971
Urticaceae							
<i>Australina pusilla</i> (Desf. ex Poiret) Gaudich.							
Violaceae							
<i>Viola hederacea</i> Labill.			y			F	
MONOCOTYLEDONAE			y				
Agavaceae			y				
<i>Phormium tenax</i> Forst. & forst.f.	i						S Harris pers. comm.
Araceae	i*		y				
<i>Zantedeschia aethiopica</i> (L.) Sprengel	i*		y				Nicholson 1999

⁸ *Euphrasia scabra* is now presumed to be extinct in the National Park.

Species Name and Authority	1	2	3	4	5	6	7
Centrolepidaceae						F	
<i>Centrolepis strigosa</i> (R.Br.) Roemer & Schultes			y		1	F	
Cyperaceae					1	F	
<i>Baumea acuta</i> (Labill.) Palla			y		1	F	
<i>Baumea juncea</i> (R.Br.) Palla			y	26613	1		
<i>Baumea tetragona</i> (Labill.) ST Blake			y		1		
<i>Gahnia filum</i> (Labill.) F Muell.					1		R&C
<i>Gahnia grandis</i> (Labill.) ST Blake			y				
<i>Gahnia sieberiana</i> Kunth		r1		98633	1	F	
<i>Gymnoschoenus sphaerocephalus</i> (R.Br.) Hook.f.			y	303941	1	F	
<i>Isolepis cernua</i> (M.Vahl) Roemer & Schultes				26664		F	
<i>Isolepis fluitans</i> (L.) R.Br.						F	Firth 1971
<i>Isolepis nodosa</i> (Rottb.) R.Br.			y	29779	1	F	
<i>Lepidosperma concavum</i> R.Br.			y	97177	1	F	
<i>Lepidosperma elatius</i> Labill.			y				
<i>Lepidosperma ensiforme</i> (Rodway) DI Morris			y				WF
<i>Lepidosperma filiforme</i> Labill.			y	24529	1		
<i>Lepidosperma gladiatum</i> Labill.			y			F	
<i>Lepidosperma gunnii</i> Boeck.			y				heath
<i>Lepidosperma inops</i> F Muell. ex Rodway	En		y				botany
<i>Lepidosperma laterale</i> R.Br.			y				
<i>Lepidosperma longitudinale</i> Labill.			y		1		
<i>Lepidosperma oldfieldii</i> Hook.f.			y				Balmer 1992
<i>Schoenus lepidosperma</i> subsp. <i>lepidosperma</i> (F.Muell.) K.L Wilson			y			F	
<i>Schoenus nitens</i> (R.Br.) Roemer & Schultes						F	Firth 1971
<i>Schoenus turbinatus</i> (R.Br.) Roemer & Schultes				25037	1		
<i>Tetraria capillaris</i> (F Muell.) J Black			y				heath
Iridaceae							
<i>Crocusma Xcrocosmiiflora</i> (Lemoine ex Morren) N.E.Br.	i						BFN
<i>Patersonia fragilis</i> (Labill.) Aschers & Graebner			y	143038	1	F	
<i>Patersonia occidentalis</i> R.Br.			y	143022	1	F	
Juncaceae							
<i>Juncus articulatus</i> L.	i		y				Gilfedder 1995
<i>Juncus conglomeratus</i> L.			y				Gilfedder 1995
<i>Juncus kraussii</i> Hochst.			y			F	
<i>Juncus pallidus</i> R.Br.				115733		F	
<i>Juncus planifolius</i> R.Br.				136071		F	
<i>Luzula campestris</i> (L.) DC						F	Firth 1971
<i>Luzula flaccida</i> (Buchenau) Edgar			y				Harris 1992
Junceaginaceae							
<i>Triglochin procerum</i> R.Br.						F	Firth 1971
Liliaceae							
<i>Lemoine ex Morren) N.E.Br.</i> L.	i						BFN
<i>Blandfordia punicea</i> (Labill.) Sweet			y		1	F	
<i>Bulbine bulbosa</i> (R.Br.) Haw.			y				
<i>Caesia parviflora</i> R.Br.						F	Firth 1971
<i>Campynema lineare</i> Labill.	En				1		R&C
<i>Chamaescilla corynubosa</i> var. <i>corynubosa</i> (R.Br.) F Muell. ex Benth.			y		1	F	
<i>Dianella revoluta</i> var. <i>revoluta</i> R.Br.			y		1	F	
<i>Dianella tasmanica</i> Hook.f.			y			F	
<i>Drymophila cyanocarpa</i> R.Br.			y				Gilfedder 1995
<i>Laxmannia orientalis</i> Keighery			y		1	F	

Species Name and Authority	1	2	3		5	6	7
<i>Nothoscordum</i> sp.	i ^g		y			F	Nicholson 1999
<i>Thclionema caespitosum</i> (R.Br.) R Henderson			y		1	F	Firth 1971
<i>Thysanotus patersonii</i> R.Br.							
Orchidaceae							
<i>Acianthus candatus</i> R.Br.			y		1	F	
<i>Acianthus pusillus</i> DL Jones			y		1	F	
<i>Burnettia cuneata</i> Lindl.			y		1	F	
<i>Caladenia carnea</i> R.Br.			y		1	F	
<i>Caladenia caudata</i> Nicholls	En (r)				1		R&C
<i>Caladenia deformis</i> R.Br.					1		R&C
<i>Caladenia dilatata</i> R.Br.			y		1	F	
<i>Caladenia latifolia</i> R.Br.			y		1	F	
<i>Caladenia patersonii</i> R.Br.	NI (V)		y		1	F	
<i>Caladenia pusilla</i> WM Curtis	5 r2		y		1		R&C
<i>Calanthe major</i> R.Br.			y		1	F	
<i>Calochilus herbaceus</i> Lindl.			y		1	F	
<i>Calochilus paludosus</i> R.Br.			y		1	F	
<i>Calochilus robertsonii</i> Benth.			y		1	F	
<i>Chiloglottis reflexa</i> (Labill.) Druce			y	143009	1	F	
<i>Corybas aconitiflorus</i> Salisb.					1	F	R&C
<i>Corybas diemenicus</i> (Lindl.) Rchb.f					1	F	
<i>Corybas fimbriatus</i> (R.Br.) Rchb.f					1		R&C
<i>Corybas incurvus</i> DL Jones & MA Clem.					1		R&C
<i>Corybas unguiculatus</i> (R.Br.) Rchb.f			y		1	F	
<i>Cryptostylis subulata</i> (Labill.) Rchb.f			y		1	F	
<i>Cryptostylis reniformis</i> R.Br.					1	F	R&C
<i>Dipodium roscoeum</i> DL Jones & MA Clem.					1		R&C
<i>Diuris orientis</i> DL Jones			y			F	
<i>Diuris palustris</i> Lindl.	3.1 r2		y		1		
<i>Eriochilus cucullatus</i> (Labill.) Rchb.f					1	F	
<i>Gastrodia sesamoides</i> R.Br.			y		1	F	
<i>Genoplesium brachystachyum</i> (Lindl.) DL Jones & MA Clem.	En	3.1 r2			1	F	
<i>Genoplesium despectans</i> (Hook.f.) DL Jones & MA Clem.		r3			1		R&C
<i>Glossodia major</i> R.Br.			y		1	F	
<i>Leptoceras menziesii</i> (R.Br.) Lindl.			y		1	F	
<i>Microtis atrata</i> Lindl.	5 r2						OA
<i>Microtis orbicularis</i> RS Rogers	5 r2		y				OA
<i>Microtis rara</i> R.Br.			y				OA
<i>Microtis unifolia</i> (G Forst.) Rchb.f.						F	Firth 1971
<i>Prasophyllum australe</i> R.Br.			y		1		
<i>Prasophyllum brevilabre</i> (Lindl.) Hook.f.			y				OA
<i>Prasophyllum elatum</i> R.Br.			y		1	F	
<i>Prasophyllum rostratum</i> Lindl.						F	
<i>Pterostylis alata</i> (Labill.) Rchb.							R&C
<i>Pterostylis melagramma</i> DL Jones					1		
<i>Pterostylis nana</i> R.Br.					1	F	
<i>Pterostylis nutans</i> R.Br.			y		1	F	
<i>Pterostylis parviflora</i> R.Br.			y		1	F	
<i>Pterostylis pedoglossa</i> Fitzg.			y		1	F	

Species Name and Authority	1	2	3	4	5	6	7
<i>Pterostylis pedunculata</i> R.Br.					1	F	
<i>Pterostylis plumosa 'old species concept'</i> L Cady			y		1	F	
<i>Pterostylis tasmanica</i> DL Jones							H Wapstra pers comm.
<i>Pyrorchis nigricans</i> (R.Br.) DL Jones & MA Clem.			y		1	F	
<i>Thelymitra aristata</i> Lindl.			y		1	F	
<i>Thelymitra azurea</i> RS Rogers	3.1	r2	y		1		
<i>Thelymitra carneae</i> R.Br.					1		R&C
<i>Thelymitra circumsepta</i> Fitzg.					1		R&C
<i>Thelymitra cyanea</i> (Lindl.) Benth.			y	99448	1	F	
<i>Thelymitra erosa</i> DL Jones & MA Clem.							H Wapstra, pers comm.
<i>Thelymitra flexuosa</i> Endl.			y		1	F	
<i>Thelymitra ixioides</i> Sw.					1	F	
<i>Thelymitra nuda</i> R.Br.					1	F	
<i>Thelymitra pauciflora</i> R.Br.			y		1	F	
<i>Thelymitra rubra</i> Fitzg.			y	99355	1	F	
<i>Thelymitra Xtruncata</i> RS Rogers	r2			126388	1	F	
Poaceae							
<i>Agrostis avenacea</i> J Gmelin						F	
<i>Agrostis billardierei</i> var. <i>billardierei</i> R.Br.				35313	1		
<i>Agrostis capillaris</i> L.	i		y	x			Gilfedder 1995
<i>Agrostis stolonifera</i> L.	i			104614			Curtis 1948
<i>Aira caryophyllea</i> L.	i		y	115728			
<i>Amnuophila arenaria</i> (L.) Link	i		y	116398			
<i>Amphibromus recurvatus</i> Swallen					1	F	
<i>Austrodanthonia caespitosa</i> (Gaudich.) HP Linder				116381		F	
<i>Austrodanthonia penicillata</i> (Labill.) HP Linder					1	F	
<i>Austrodanthonia pilosa</i> (R.Br.) HP Linder				98924		F	
<i>Austrodanthonia setacea</i> (R.Br.) HP Linder			y	30919	1	F	
<i>Austrostipa flavescens</i> (Labill.) SWL Jacobs & J Everett							
<i>Austrostipa stipoides</i> (Hook.f.) SWL Jacobs & J Everett							BFN
<i>Austrostipa stipoides</i> (Hook.f.) SWL Jacobs & J Everett			y	116394		F	
<i>Briza maxima</i> L.	i		y				Gilfedder 1995
<i>Catapodium rigidum</i> (L.) CE Hubb. ex Dony	i		y				Gilfedder 1995
<i>Dactylis glomerata</i> L.	i		y				
<i>Deyeuxia densa</i> Benth.		5			1	F	
<i>Deyeuxia quadrisetata</i> (Labill.) Benth.		r2			1	F	
<i>Deyeuxia scaberula</i> Vick.			y		1	F	
<i>Dichelachne crinita</i> (L.f.) Hook.f.			y		1	F	
<i>Dichelachne rara</i> (R.Br.) Vick.				116856	1		
<i>Distichlis distichophylla</i> (Labill.) Fassett				111797			CJ Adams 1977
<i>Ehrharta acuminata</i> (R.Br.) Sprengel					1	F	
<i>Ehrharta distichophylla</i> Labill.			y		1		
<i>Ehrharta stipoides</i> Labill.				31096*			R Mason 1977
<i>Ehrharta tasmanica</i> var. <i>tasmanica</i> (Hook.f.)	En		y		1		
Willemse							
<i>Elymus scaber</i> (Labill.) P Beauv.			y				heath

Species Name and Authority	1	2	3	4	5	6	7
<i>Hemarthria uncinata</i> R.Br.			y		1	F	
<i>Holcus lanatus</i> L.	i		y				Gilfedder 1995
<i>Lolium perenne</i> L.	i		y				Gilfedder 1995
<i>Phragmites australis</i> (Cav.) Trin. ex Steudel			y				BNF
<i>Poa annua</i> L.	i						
<i>Poa clelandii</i> Vick.		r2	y	320135	1		R&C
<i>Poa gunnii</i> Vick.	En		y		1		
<i>Poa labillardierei</i> var. <i>labillardierei</i> Steudel			y	28495		F	
<i>Poa poiformis</i> (Labill.) Druce			y	116868			Collier 1986
<i>Rytidosperma dimidiatum</i> (Vick.) Connor & Edgar	En						
<i>Spinifex sericens</i> R.Br.			y	116395			
<i>Stenotaphrum secundatum</i> (Walter) Kuntze	i*		y				Nieholson 1999
<i>Vulpia myuros</i> (L.) C Gmelin	i		y				Gilfedder 1995
Restionaceae							
<i>Acion hookeri</i> (D.I.Morris) B Briggs & L Johnson			y		1		
<i>Baloskion tetraphyllum</i> (Labill.) B Briggs & L Johnson.			y		1	F	
<i>Calorophus elongatus</i> Labill.			y	300421	1		
<i>Empodisma minus</i> (Hook.f.) L Johnson & Cutler			y		1	F	
<i>Eurychorda complanata</i> (R.Br.) B Briggs & L Johnson			y	135273	1	F	
<i>Hypolaena fastigiata</i> R.Br.			y	135029	1	F	
<i>Leptocarpus tenax</i> (Labill.) R.Br.			y				
<i>Sporadanthus tasmanicus</i> Hook.f.			y		1		
Typhaceae							
<i>Typha</i> sp.	i		y				Gilfedder 1995
Xanthorrhoeaceae							
<i>Lomandra longifolia</i> Labill.			y		1	F	
<i>Xanthorrhoea australis</i> R.Br.			y			F	
Xyridaceae							
<i>Xyris gracilis tasmanica</i> (DI Morris) AN Doust & BJ Conn	En						Buchanan 1996
<i>Xyris marginata</i> Rendle			y	26681	1	F	
<i>Xyris muelleri</i> Malme			y		1		
<i>Xyris operculata</i> Labill.			y	144622	1	F	
PTERIDOPHYTA							
Aspleniaceae							
<i>Asplenium flabellifolium</i> Cav.					1		R&C
<i>Asplenium flaccidum</i> Forst.f.				H			FA
<i>Asplenium obtusatum</i> Forst.f.					1		R&C
<i>Asplenium appendiculatum</i> (Labill.) C Presl				H			FA
Blechnaceae							
<i>Blechnum minus</i> (R.Br.) Ettingsh.					1		
<i>Blechnum nudum</i> (Labill.) Mett. ex Luerss.			y		1		
<i>Blechnum wattsii</i> Tind.			y		1		
Cyatheaceae							
<i>Cyathea australis</i> (R.Br.) Domin							BNF
<i>Cyathea cunninghamii</i> Hook.f. ¹⁰	R	r2		H			FA
Dennstaedtiaceae							
<i>Histiopteris incisa</i> (Thumb.) J Smith			y		1		
<i>Hypolepis rugosula</i> (Labill.) J Smith			y		1		

Species Name and Authority	1	2	3	4	5	6	7
<i>Pteridium esculentum</i> (Forst.f.) Cockayne			y		1		
Dicksoniaceae					1		R&C
<i>Calochlaena dubia</i> (R.Br.) MD Turner & RA White							
Dicksoniaceae			y		1		R&C
<i>Dicksonia antarctica</i> Labill.							
Dryopteridaceae							
<i>Polystichum proliferum</i> (R.Br.) C Presl				H			FA
<i>Ranohra adiantiformis</i> (Forst.f.) Ching				300420	1		
Gleicheniaceae							
<i>Gleichenia dicarpa</i> R.Br.			y	303771	1		
<i>Gleichenia microphylla</i> R.Br.			y		1		
Grammitidaceae							
<i>Ctenopteris heterophylla</i> (Labill.) Tind.			y	H	1		
Hymenophyllaceae							
<i>Hymenophyllum cypressiforme</i> Labill.						1	R&C
Lindsaeaceae							
<i>Lindsaea linearis</i> Sw.			y		1		
Lycopodiaceae							
<i>Huperzia varia</i> (R.Br.)						1	R&C
<i>Lycopodiella lateralis</i> (R.Br.) B Ollg.			y		1		
<i>Lycopodiella serpentina</i> (Kunze) B Ollg.					1		R&C
<i>Lycopodium deuterodensum</i> Herter			y	H	1		
<i>Phylloglossum druhmondi</i> Kunze	5 r2			H			FA
Osmundaceae							
<i>Todea barbara</i> (L.) T Moore			y	322382	1		
Polypodiaceae							
<i>Microsorum pustulatum</i> (Forst.f.) Copel.			y		1		
Schizaeaceae							
<i>Schizaea bifida</i> Willd.				116857	1		
<i>Schizaea fistulosa</i> Labill.			y	H	1		
Selaginellaceae							
<i>Selaginella gracillima</i> (Kunze) Alston	r2		y		1		R&C
<i>Selaginella uliginosa</i> (Labill.) Spring			y		1		
GYMNOSPERMAE							
Cupressaceae							
<i>Callitris rhomboidea</i> R.Br. ex Rich.	i						S Corbett DPIWE files
Pinaceae							
<i>Pinus radiata</i> D Don	i						S Corbett DPIWE files

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ROCKY CAPE NATIONAL PARK VEGETATION

LEGEND

Access

— Roads
— Tracks

Vegetation Overstorey

■ *E. nitida* & *B. serrata* woodland
■ *E. nitida* woodland
■ *E. obliqua* forest
■ *E. viminalis* forest

Vegetation Understorey

□ Buttongrass moorland
■ Cleared
■ Coastal heath
■ Coastal shrubberies
■ Heath
■ Melaleuca squarrosa swamp
■ Melaleuca squarrosa swamp & Buttongrass moorland
■ Melaleuca swamp forest
■ Scrub
■ Tall tea tree
■ Wet heath
■ Xanthorrhoea heath

0 1 2
Kilometres
Scale: 1:25 000
Contour Interval 50 m

Data compiled at:
19 April 2000



Nature Conservation Branch
DPIWE

